THE AMERICAN

JOURNAL OF PHARMACY.

*JANUARY*, 1875.

## ON THE PREPARATION AND CHARACTER OF ELATERIN.

BY FREDERICK B. POWER, PH. G.

*Read at the Pharmaceutical Meeting, December 15th.*

A handsome specimen of Clutterbuck's elaterium was obtained, which upon preliminary examination was found to be free from the adulterations sometimes present, and containing no substances foreign to the drug itself.

Fifty grains were exhausted with boiling alcohol, the resulting solution thrown upon a filter, the filter washed with a little boiling alcohol, and the filtrate evaporated by a gentle heat; while still warm, it was poured into a warm dilute solution of potassium hydrate, whereby most of the resin was retained in solution, and the elaterin gradually precipitated, upon cooling, in small crystalline crusts or grains.

The amount of elaterium dissolved by the boiling alcohol was sixty per cent., and seven grains of elaterin were obtained, which still required to be purified from the adhering green resin, which clings to it with considerable pertinacity, interfering, both by retarding crytallization and diminishing the beauty and purity of the product.

The impure elaterin was collected, thrown upon a filter, washed with cold water, and redissolved in boiling alcohol.

The solution still possessed a greenish hue, and was agitated with petroleum benzin, which absorbed the resin, and upon the separation and evaporation of the liquids the elaterin in beautiful colorless needle-shaped crystals, and the remainder of the resin were separately obtained.

The advantage of benzin for the removal of this resin, and which has proven so useful an agent in many of the operations of chemistry and pharmacy, is very apparent, since the use of ether, which has been previously suggested and employed for the accomplishment of this

purpose, is much less preferable in point of economy, at the same time dissolving a portion of elaterin, and thereby causing a considerable loss, while by the use of benzin no appreciable amount of elaterin is dissolved, and it is believed that by taking advantage of this fact, treating the elaterium first with water to remove the inert substances soluble therein, treating the residue with boiling alcohol and subsequently with benzin, the green resin may thus be completely removed, without resorting to the use of the alkaline solution, thereby considerably modifying the usual process, and rendering this preparation much more expeditious, although the amount of material at the writer's disposal would not admit of any extended experiments in this direction.

A small portion of elaterium was boiled for two hours with dilute $H_2SO_4$ (one part of acid to ten of water), which almost entirely dissolved it, forming a nearly colorless solution, and frothing quite strongly upon agitation, while a few resinous flocks remained insoluble, which, upon separation, were soluble in alcohol, with a yellowish-red coloration.

The filtered acid solution in behavior to an alkaline solution of cupric oxide and KHO gave evidence of the presence of glucose, although the failure to obtain this result with elaterin induces the writer to believe that *pure elaterin* is not a glucoside, and that in instances where a reduction of the cupric oxide takes place, it may be attributed to the impurities which may be present.

According to Zwenger (*vide* Gmelin's Handbook of Chemistry, Vol. xvii, page 365), "Elaterin is insoluble in dilute acids and alkalies, and does not precipitate alcoholic solutions of metallic salts, although aqueous solutions of metallic salts precipitate elaterin from its alcoholic solution in the same manner as water."

"It dissolves in oil of vitriol with dark red color, and is precipitated from its solution as a brown substance by water."

The writer observed the following behaviour toward reagents:

If a crystal of elaterin be placed on a porcelain plate with a drop of concentrated sulphuric acid, a deep red color is instantly produced, which is one of its most delicate tests; if a small fragment of potassium bichromate be then added, it changes to a deep brown, and ultimately to a light green.

As salicin and other substances, however, produce a red coloration with sulphuric acid, this test alone cannot be relied upon, unless attended by other and confirmatory results.

Its solution in concentrated sulphuric acid becomes carbonized upon the application of heat.

With hydrochloric acid no change of color takes place, either in the cold or upon heating, and it is apparently insoluble in this liquid.

If a drop of strong nitric acid be added to elaterin upon a porcelain plate, no change of color takes place, except after standing for several hours, when a pinkish tinge is observed; but upon heating it with that liquid, a red coloration is soon produced, with the evolution of nitric oxide vapors, and upon the addition of water, separates white flocks.

It undergoes no change of color with chlorinated alkalies. An alcoholic solution of elaterin is not precipitated by an alcoholic solution of tannic acid or barium chloride. When heated, it melts, giving off white fumes, which are neutral in their action upon litmus, and burns with a smoky flame, leaving a garnet-colored, resinous ash.

A prescription was recently received for one grain of elaterin, to be dissolved in a fluidrachm of water, for hypodermic injection; but being wholly insoluble in water, no practical method could suggest itself to the mind of the writer whereby such an application could be obtained.

*Philadelphia, December*, 1874.

---

## NOTE ON THE PROXIMATE ANALYSIS OF CINCHONA BARK.

*Limited to the separation of the four alkaloids, Quinia, Quinidia, Cinchonia and Cinchonidia, and the three acids, Quinic, Quinovic and Quinotannic.*

BY ROBERT M. COTTON.

The process given below is nothing more or less than the combination of methods reported by different authorities, and given in Watts' Dictionary and Gmelin's Handbook, modified, in some particulars, after trial. The writer has found all the results of this process to be satisfactory. The same material was subjected to operations by other methods without obtaining as good results.

Any desired quantity—say one-half pound—of the powdered bark is macerated with warm water for two or three days and then percolated, water being added upon the percolator to exhaustion. Hydrochloric acid is added to the percolate, to a distinct acid reaction; then solution of caustic soda is added, with stirring, to an alkaline reaction, and the mixture is set aside for some hours for subsidence of the precipitate The whole is then filtered, and the precipitate well washed with cold

water: this precipitate, *a*, contains the alkaloids, and the filtrate, A, contains the acids.

The washed precipitate, *a*, is exhausted with (much) ether, giving an ether-solution, *b*, containing the quinia and quinidia, while cinchonia and cinchonidia are left undissolved. Precipitate *a* is again washed with water, and then treated with 90 per cent. alcohol, which dissolves the cinchonidia with a little cinchonia: solution *c*. Precipitate *a*, washed again with water, remains as nearly pure cinchonia. The residue of solution *c*, is the cinchonidia with a little cinchonia. (Cinchonia is soluble in about 120 parts of 90 per cent. alcohol; cinchonidia in about 12 parts of the same solvent.)

The quinia and quinidia of solution *b*, are separated from each other by the unlike solubilities of their oxalates, as follows: A moderately dilute water solution of oxalic acid is added to an acid reaction; the ether is allowed to evaporate or is distilled off; and the residue is treated with water. The solution *d*, contains the quinidia as oxalate, together with a very little oxalate of quinia. The residue is not soluble in water, is dissolved with dilute sulphuric acid, as acid sulphate of quinia, solution *e*. By precipitation with aqueous alkali, quinia is obtained from solution *e*, and quinidia from solution *d*.

Each of the four alkaloids may be obtained in crystals from a saturated alcoholic solution.

In the work for acids, the quinovic acid is precipitated with normal lead acetate, leaving quinic acid in solution. Also, if the lead acetate is added short of saturation, the quinotannic acid remains in solution. To accomplish this result, two-thirds of solution *a* is treated with neutral acetate of lead solution just to complete saturation, and immediately mixed with the remaining one-third. The precipitate of quinovate of lead is filtered out, washed with water, suspended in water, and decomposed by dropping in very dilute sulphuric acid, until the precipitate turns white, carefully avoiding an excess (which would decompose the quinovic acid). The liquid is decanted from the lead sulphate, upon a filter, and the filtrate concentrated and left some time to crystallize as quinovic acid.

The filtrate from the precipitate by acetate of lead is concentrated to the consistence of a thin syrup, and set aside to crystallize. It may require the insertion of a nucleus for crystallization. There should now form a crystalline mass (quinic acid), mixed with yellowish drops

of oily consistence (quinotannic acid). The mass is washed with ether, the residue being quinic acid, very deliquescent.

The ether solution is evaporated, leaving in residue the quinotannic acid, uncrystallizable.

*University of Michigan, July 1st*, 1874.

---

## ARBUTIN IN *KALMIA LATIFOLIA*, LIN.

BY GEORGE W. KENNEDY, PH. G.

The order Ericaceæ embraces chiefly shrubs with the leaves mostly alternate, the flowers quite regular, and the fruit a berry or capsule. It is one of our most interesting orders, including many plants of medicinal properties and a multitude that are exceedingly handsome, especially the azaleas, rhododendrons, kalmias, and many species of the multitudinous genus Erica, which is the type of the family. The rhododendrons growing on the Himalaya Mountains are among the most splendid of ornamental trees and shrubs. *Arbutin** has been found in the sub-orders Pyroleæ and Ericineæ; and plants belonging to the sub-order Vaccineæ contain kinic acid. To determine the principles in other hitherto unexamined species of this order, the writer has made an examination of *Kalmia latifolia*.

The genus takes its name in honor of Peter Kalm, a distinguished Swedish botanist. The species, *latifolia*, or broad-leafed *Kalmia*, is known by the names of calico bush, mountain laurel, and spoonwood, the latter name being given because the Indians made spoons from the wood. It is an evergreen, and is found abundantly from Maine to Ohio and Kentucky, growing on hillsides and mountains, preferring damp soil; the leaves are mostly alternate, bright green on both sides, ovate-lanceolate or elliptical, tapering to each end, and tenaceous. It grows from four to twenty feet high, its growth being influenced by the locality; on level grounds and small hills it is scarcely ever found above ten feet high, whereas in mountainous regions it grows as high as twenty feet, presenting a tree-like appearance; where the writer resides it grows from six to twenty feet, and is scarcely ever found smaller than six.

The process adopted for the extraction of arbutin was that of Kawalier, and was conducted in the following manner: Three pounds

* See American Journal of Pharmacy, 1874, page 314.

of the fresh leaves were collected by the writer and carefully dried in a room, when they were found, upon reweighing, to have lost sixty-three per cent. The dried leaves were coarsely powdered and treated with boiling water for several hours, strained and expressed, and again treated in a similar manner. The mixed decoctions were precipitated with acetate of lead and filtered, the filtrate was then submitted to the action of sulphuretted hydrogen to remove all the lead; the liquid is again filtered and evaporated to the consistence of a soft extract. The evaporation in the first experiment was carried too far, leaving a viscid, reddish-colored mass, in which, after standing several days, no crystals of arbutin were perceptible. Another lot of the leaves was gathered, a strong infusion was made, filtered and evaporated to a solid consistence. The aqueous extract thus obtained was treated with alcohol, the residue was a viscid mass containing the kinic acid, if present, perhaps in combination with calcium, this being insoluble in alcohol. An aqueous solution was next formed of this substance and allowed to evaporate at a gentle heat, when crystals of the kinate, if present, should have been deposited; but, as in the preceding examination, I was disappointed. Another experiment was made similar to the first, with the exception that the liquid, after being treated with acetate of lead and sulphuretted hydrogen, was not evaporated, so much and I was this time rewarded with the separation of arbutin in crystals, repeated experiments giving the same satisfactory results. A few crystals were separated from the mass to which they were adhering and dissolved in water. The solution was made alkaline by ammonia as directed by Jungmann, and phosphomolybdic acid added, when immediately the beautiful blue color characteristic of arbutin was produced. Quite a weak infusion of *Uva ursi* was at the same time made and tested as above, which gave the same blue color. If an impure solution is examined, which with ammonia will make an orange color, the phosphomolybdic acid added to this will change it to a bluish green. *Kalmia latifolia* does not contain arbutin so largely as *Uva ursi*; the yield from the mountain laurel was so small that I did not separate it from the adhering mass. The process of Kawalier is certainly a very good one as to simplicity of extraction, with the exception of acetate of lead, for which the basic salt may be substituted with advantage, to separate gum and coloring principles, the presence of which will retard the crystallization of the arbutin.

Besides arbutin, the presence of gum, tannin, lime and iron were noticed incidentally.

*Pottsville, Pa., December* 5, 1874.

## PRACTICAL NOTES.

BY HANS M. WILDER.

*Harmless Face Powder.*—The apothecaries in Copenhagen (Denmark), have agreed on the following two compositions as substitutes for the numerous, generally poisonous, fashionable face powders:

*White.*

| | |
|---|---|
| Oxide of zinc, | 30 grms. |
| Wheat starch, | 250 " |
| Oil of rose, | 3 drops. |

*Red.*

| | |
|---|---|
| Carmine, | 1 grm. |
| Carbon. of magnesia, | 4 grms. |

*Approximative Estimation of the Strength of very small quantities of Alcohol.*—It being sometimes desirable to know (at least approximatively) the strength of very small quantities of alcohol, Prof. C. T. Barford, Copenhagen, recommends to moisten small slips of filtering paper thoroughly with the alcohol, and put fire to them. When, after the alcohol has burned out, the paper slips catches fire readily, then the alcohol must be stronger than 80 per cent.; if the paper barely catches fire, the strength may be presumed to be between 75 to 80 per cent.; if it does not catch fire at all, the alcohol cannot be stronger than 73–75 per cent. The rationale is simply this: The small percentage of water existing in strong alcohol vaporizes by the heat of the burning alcohol, and consequently leaves the paper dry. Alcohol of 73 per cent. or weaker, leaves the paper damp.

It will be seen that in this way the strength of even five drops of alcohol may be estimated.

*Philadelphia, December 7th,* 1874.

---

## OS SEPIÆ.

BY THOMAS S WIEGAND, PH. G.

There are many among those who daily handle, and even sell the common cuttle-fish bone, as it is ordinarily termed, who would be quite surprised to learn that it is not a bone at all, at least in the same sense that the term bone is used in speaking of the vertebrate animals, the

frame-works of whose bodies are bony. This "fish-bone," which is frequently found floating in the Mediterranean Sea, and in much greater quantity on the shores of Australia, is of an oblong oval shape, from three to ten inches long, and its breadth is about one-third of its length, hard upon its upper surface and edges, but soft on its lower side, both surfaces being convex; its specific gravity is about ·935. Its composition, though calcareous, is quite different from bone, being about 83 per cent. of carbonate of calcium, with some magnesia and common salt, and but little animal matter. The structure of the bone is quite peculiar, a fresh fracture, when examined, shows the layers of the calcium salt, supported by pillars of the same material, arranged in regular rows, likened by Wood, the naturalist, to a miniature giant's causeway.

The *Sepia officinalis*, for this is the title of the fish which furnishes the little songsters with their tiny grindstones whereon to whet their bills, belongs to the class Mollusca and order Cephalopoda; this term alluding to the feet being attached close to the head. Its generic name *Sepia* is in consequence of the color which it ejects when chased or angered. It is most commonly found on the Australian coast, though most of the commercial supply is derived from Europe.

The various names of Great Polypus, Colossal Cuttle-fish, Gigantic Squid. Kraken, Devil-fish, &c., will appear to be well deserved when some of their performances, for which very truthful observers vouch, are narrated. Montfort has described their habits fully, and shows them to be very dangerous and disgusting, even when so small as not to be dreaded for their size and strength; their activity and determination is very remarkable. The attack of one upon a ship, sailing from St. Malo, a seaport in France, is celebrated by a painting, hung up in the church of St. Thomas in that city, representing the vessel with the arms of the fish clasped about the masts and sides of the vessel which was only freed from the monster by the vigorous efforts of the crew in cutting away the encircling arms. The reader must remember, however, that the *Sepia officinalis* are not to be held answerable for these performances, they belong to other branches of the family; the smaller members are generally peacefully inclined, but when irritated they become exceedingly annoying to those who molest them. The rocks and coast of Madagascar is shunned by the natives who wish to swim on account of the rock squids fastening upon the persons of the swimmers with their suckers, if they venture too near the shore. One of the most recent accounts which appears well authenticated, is

contained in a late number of the *London Spectator*, which tells of a cuttle-fish that appeared off the New Foundland coast, in Conception Bay; some fishermen supposing it, from its size, to be a portion of a wreck, pulled out for it, and striking at it, they so enraged it that it raised its beaked head and encircled the boat with two of its slimy arms; instantly the men cut them away with their axes, and the fish, finding the fight too severe for him, sailed away, inking the sea for several hundred yards. The arm, which was of a pale pink color and entirely cartilaginous, was preserved in St. Johns Museum, and was found to measure nineteen feet; this report, so well authenticated, gives some show of truth to the marvellous story which Victor Hugo has so graphically depicted in his tale of the "Toilers of the Sea."

The use to which *Os sepiæ* is put in pharmacy proper is but trifling, it furnishing when levigated and dried, a very fine variety of carbonate of calcium, but is more generally employed in the fabrication of tooth powders, being the basis of Betton's dentifrice, and the cuttle-fish powder of Piesse, formulas for which are appended to this article.

There is one other product of the cuttle-fish which is used in the arts, a substance called sepia, a coloring matter of black color, and when well prepared highly prized by artists. This substance is secreted by the fish from a bag or sack, which it can contract at will, and thus discharge some of the coloring matter into the surrounding water, and staining it for the purpose of preventing its enemies from seeing it so as to be able to pursue it.

A few words about the proper method of making the class of powders mentioned will perhaps be useful to the readers of the JOURNAL. It is of highest importance that the basis of all tooth powders should be so free from all sharp, gritty particles that there will be no danger of abrasion to the enamel of the teeth. This fineness, of course, is to be obtained only by careful pulverization and passing the powder through a sieve of fine bolting cloth, all the various materials being reduced to an equal degree of fineness. When coloring matter is to be added, and this generally is some shade of pink, the finest color is obtained by washing the calcareous powder with a solution of carmine in aqua ammoniæ, and exposing the powder to the air until free from ammoniacal odor and moisture; to this prepared calcareous base the remaining powders are added, and the whole thoroughly incorporated by sifting together.

*Betton's Dentifrice.*

Take of—

| | |
|---|---|
| Powdered cuttle-fish, | |
| " orris root, each, | 4 pounds. |
| " prepared chalk, | 1 " |
| Musk, | 8 grains. |
| Oil rose and lavender (Mitcham), each, | 48 drops. |
| Carmine, No. 40, | 2 drachms. |
| Aqua ammoniæ, | 5 fluidrachms. |
| Water, | 6 fluidounces. |

Rub the carmine with the aqua ammoniæ diluted with the water, and with this solution imbue the prepared chalk and powdered cuttle-fish bone. After the moisture has all disappeared, sift the orris root perfumed with the essential oils together with the colored lime salts.

*Piesse's Cuttle-Fish Powder.*

Take of—

| | |
|---|---|
| Powdered cuttle-fish, | ½ pound. |
| Precipitated carbonate of lime | 1 " |
| Powdered orris root, | ½ " |
| Oil lemon, | 1 ounce. |
| Oil of neroli, | ½ ounce. |
| Carmine, | ½ drachm. |
| Aqua ammoniæ, | 2 fluidr'ms. |
| Water, | 1½ fluidoz. |

Proceed as in former recipe.

---

## ON SOME SUBSTITUTIONS.

BY JOHN M. MAISCH.

*Read at the Pharmaceutical Meeting, December 15th.*

*Agaric* or *White Agaric* is a drug which was formerly much more frequently employed than at present, but is still occasionally used, particularly in domestic medicine, and mainly as an ingredient in several bitters, which, among a portion of our German population, enjoy some popularity. The drug consists of the pileus or cap of a fungus, named *Polyporus officinalis*, Fries, s. *Polyp. laricis*, Roques, s. *Boletus laricis*, Jacquin, s. *Bol. officinalis*, Villars, s. *Bol. purgans*, Persoon. It occurs in the market in irregular masses of the size of a fist and larger, is occasionally semilunar in shape or resembles the section of a cone. It is of a white color, light and friable, nearly inodorous, and possesses a taste which is at first sweetish, but soon becomes bitter and acrid.

Recently a sample of a so-called white agaric, which had been obtained in New York, was sent to me; it was in the form of a coarse

white powder, intermixed with some larger, irregular white pieces, none of which exceeded a quarter inch in length or thickness, but, on superficial examination, possessed the physical characters of true agaric. The powder was of a sweetish, subsequently bitter, acrid taste, which, however, was much less marked than in the genuine drug; the larger pieces, freed from the adhering dust, were nearly insipid and entirely devoid of bitterness. A section placed under the microscope showed it to consist of the peculiar filamentous cells of the fungi; but on searching a number of works on Materia Medica, I found no adulteration or substitution mentioned, except by Wiggers, who states that agaric is occasionally mixed with pieces of *Polyporus igniarius*, Fries, made to resemble agaric by covering it with the powder of the latter. The substance in question, however, is not derived from a *Polyporus*, which genus is characterized by having the hymenium or gills concrete with the pileus or cap, and consisting of subrotund pores.

Some of the pieces have fragments of lamellæ still attached, showing the substance in question to be most probably the cap of a species of *Agaricus*, from which the lamellate gills have been almost completely removed, and which was afterwards broken into small pieces and mixed with some powder of the larch agaric, to impart a bitter taste. The substitution can easily be detected by examining some of the larger pieces in the manner indicated above.

*Gossypii radicis Cortex* of the U. S. Pharmacopœia, is the bark of the root of the cultivated species of *Gossypium*. The woody, conical, nearly simple root of the cultivated cotton plant is covered with a thin bark, about half a line to one line in thickness, rarely thicker. Externally, the bark is of a brownish-yellow color, with larger irregular patches of a brownish-orange, caused by the abrasion of the outer layer of cork, and smaller ones more scattered, of a nearly black color. The yellowish portion has a slight satiny lustre, the other parts are dull. The thin, corky layer which adheres well to the bast layer, forms shallow longitudinal ridges, often becoming confluent into narrow, elongated meshes. Suberous warts or their scars are scattered over the surface, at first circular in shape, ultimately forming short transverse, black lines. The inner surface is of a whitish, or reddish-white color, a silky lustre, and finely but, to the naked eye, distinctly striate in a longitudinal direction. A pocket lens reveals these striæ as thin, medullary rays penetrating into the bark. The bast fibres are long and tough, and arranged in tangential rows, on account of which the inner bark may be separated into very thin, almost transparent layers without difficulty.

The bark is without odor; the bast possesses scarcely an acrid taste; the corky layer is in the main rather feebly astringent.

Some months ago, in one of our wholesale stores, I met with a so-called cotton-root bark, which had been obtained from the State of Georgia, and which is so entirely different from the root bark of our cultivated *gossypium*, as to leave no doubt whatever in regard to its origin from a different plant. The bark is in quills or curved pieces, several inches to a foot or more in length, and one-eighth to one-fourth inch in thickness, inodorous, of a slight astringent, afterwards bitterish and distinctly acrid taste; pale brown to rust-brown throughout in color, and destitute of silky lustre, except the bast fibres upon a fresh fracture. The exterior surface is deep brown, the younger bark with shallow, longitudinal suberous ridges, the older bark with the soft cork more or less fissured, and exfoliating in small patches. The interior surface is of a dark brown or blackish-brown color, and striate by the rather coarse bast fibres. The bark breaks transversely with little difficulty, and exhibits a coarse, splintery fracture from the numerous bast fibres, which are disposed in tangential rows; the inner bark separates in the same direction in rather thick layers. Some of the coarser pieces of bark are found with a clayey earth adhering in the grooves and bends.

The characters described are, with very insignificant variations, observed in the bark of the root of cotton plants, which some years ago were furnished me from several varieties grown in four or five of our Southern States, and for which I am indebted to the kindness of Dr. Robert Battey, of Rome, Ga., and Mr. Gallagher, of Washington, North Carolina.

It will be observed that the description agrees in several important points with the characteristics of mezereon bark, to which cotton-root bark bears a close resemblance, if color and taste are not considered; the thin, ribbon-like appearance, the silky lustre of the internal surface, the transverse scars of suberous warts and the toughness of the bast fibres are common to both.*

* After the above was in type, I have received, through the kindness of Dr. A. W. Miller, a sample of cotton-root bark collected by Wallace Bros. & Stephenson, of Statesville, North Carolina. This agrees in every respect with my cotton-root bark, except that it is more or less quilled, showing that it has been taken from the recently collected root, and dried without endeavoring to prevent its quilling; my bark was stripped from nearly dry roots and purposely kept in bands. I have not noticed any striking difference in the root-bark of the long and short staple cotton.

What is the origin of this bark? It can scarcely be doubted that it is derived from the root of a tree, and it is not unlikely that it must be referred to one or more species of *Populus*, several of which are popularly known as *cottonwood*, on account of the cotton-like filaments found in the fruit. This name is more particularly applied to the following three species; *Populus angulata*, Aiton, the western cotton-tree which is found from Pennsylvania to Wisconsin, and further southward; *Pop. monilifera*, Aiton, cottonwood or necklace-poplar, from Western Vermont to Illinois and southwestward to Louisiana; *Pop. heterophylla*, Lin., cotton-tree or downy poplar, found in about the same localities, though rarer than the preceding in the New England States. The three species grow along river banks and in swampy localities, and it does not seem unlikely, that one or all three yield at least a portion of the so-called cotton-root bark of commerce.

I am not aware that authentic specimens of the bark of *Gossypium* or of these species of *Populus* have been submitted to analysis, but as far as can be judged from the taste, and other sensible properties, I am inclined to the belief that at least a considerable portion of the commercial fluid extracts of cotton-root bark have *not* been made from the officinal *Gossypii radicis cortex*, but from this substitute.

The question then presents itself to which cotton-root bark must be ascribed the reputed emmenagogue properties, upon the strength of which *Gossypii radix* and afterwards *Gossypii radicis cortex* was admitted into the Pharmacopœia? The writer would be thankful to manufacturers of fluid extracts, to wholesale druggists, and particularly to physicians and pharmacists of the Southern States where *cotton-root bark* appears to be principally used, for authentic specimens of the plant and of its root, to which the medicinal properties are ascribed.

---

## LIQUOR SELLING BY PHARMACISTS.

BY HENRY S. WELLCOME, PH. G.

At the annual meeting of the American Pharmaceutical Association, held at Louisville, Ky., Sept. last, a member proposed that the Association take some action to influence a repeal, or at least a modification, of the present laws, requiring the druggist to pay license for the sale of liquors. The objection was at once raised that, if the druggist was not required to pay liquor license, every saloon keeper would put out a

drug sign, and under that shield continue his business. After other unimportant discussion the subject was dropped.

It is not the writer's purpose to discuss the justice or injustice of the law compelling the conscientious druggist to place himself on a level with the saloon-keeper, by requiring him to pay the same license, or subject himself to the risk of a heavy fine and the disgrace attending a prosecution, though he endeavors to confine his sales of liquors to the actual requirements of them as a medicine.

The present stringent laws have been caused by the abuse, by many druggists, of the privileges afforded to the profession. We believe that the greater number of druggists confine their sales to its legitimate requirements; but there are still a large number who do disgrace the profession by using their titles as a cover under which they carry on an extensive liquor traffic, and in some cases so remunerative that many saloon keepers might envy it. Some druggists make no secret of this department, and sell without restrictions; but this is rarely the case; usually there is a back room, where the right customer can get whatever he wants, but a good watch is kept that they don't let the wrong men into their secrets. Some sell to their customers in bottles, and allow them to be concealed in a convenient place about the back room, so that customers with their friends can have easy access and resort to it *ad libitum*. A very popular custom, for several years past, is that of selling liquors from the soda fountain, under the disguise of some mysterious name, so that the favored customer can get his drinks without calling for them as he would at an ordinary bar. There are many other devices resorted to by which they manage to escape the tangles of the law and just censure of the public.

It seems unreasonable that champagnes and other fancy liquors should be included in the stock of the legitimate pharmacist, but we frequently find them there. Not only are such pharmacists a disgrace to the profession, but they are casting an atmosphere of suspicion about it so that we not unfrequently see the name coupled with that of the saloon-keeper. The following is an abstract from a circular issued by the liquor dealers of Chicago, during the enforcement of the *eleven-o'clock* and *Sunday* liquor law, and was addressed to the druggists of that city. "It shows that the drug store is considered the resort when the doors of the saloons are closed. The present agitation of the vexed liquor question is of far more importance to the druggist than is generally supposed; at the present time the trouble is confined

to saloons, but soon the liquor law will be waged as hotly against the druggist, not only to his injury, but to the injury and great discomfort of his customers. The present enforcement creates a greater demand on the druggist for liquors, yet no one can tell how soon that part of his trade will be cut off by the very ones now so successfully shutting up the saloons." This is followed by an argument defending the right of every man to make a beast of himself if he sees fit. The evil effects are also evident within the profession, by the demoralizing influence upon the clerks and apprentices who deal out liquors. No other profession demands as much from assistants, and they being almost entirely cut off from the pleasures of society, and, not unlike other mortals, prone to yield to temptations, and in their case become even more susceptible by the long hours and continued application to which they are subjected. This traffic always draws a class of dissipated men, whose influence upon the clerk is of the most poisonous character, and often causes his ruin. This class of druggists are frequently troubled with dissipated and unreliable clerks, and is it to be wondered at?

Will not some of our leaders raise a voice against this growing dishonor to the profession? Cannot some one suggest a remedy for this evil, or, at least, a means by which the outside world can distinguish between the *pharmaceutical saloon* and the legitimate *pharmacy?* It is a subject which should interest every one who has the good of the pharmacal profession at heart.

*New York, December 16th, 1874.*

---

## ON SOME STATISTICS OF THE DRUG BUSINESS.

The popular notion that the drug business is a very profitable one in all its various branches, is deeply seated in the minds of the public, and all denials, on the part of those engaged in it, seem to have no other effect than to provoke a smile of incredulity, on the same principle, probably, that every man thinks his neighbor's business better than his own, or his troubles lighter. And this idea of the great profit in handling drugs, which has prevailed for so long a time, has had its effect in crowding so many persons into the business, that we may well stop to ask if it is not overdone?

That the trade in drugs was at one time a profitable one, there can be no doubt; but if we are to judge from the frequent statements made by so many of those engaged in it now, that it is not what it

once was; that there is no profit in it; that, at the end of the year, nothing is left after all bills are paid, and other complaints of a similar nature, we must conclude these days have departed, at least for the present, and, as a matter of interest to all concerned, endeavor to find some cause for the change that undoubtedly has taken place in the trade.

It is not the intention of the writer, in this paper, to advance any theories as to the causes which have produced the alleged changes in the business of pharmacy, but simply to direct attention to the facts shown by a comparison of the tables of the three last U. S. Census Reports, viz., 1850, 1860, 1870, as they apply to pharmacy and some other pursuits connected with, or allied to, it, and allow each to draw his own conclusions. Previous to 1850, no reports were made in which the different occupations were classified with as much detail as they were in that year and in subsequent reports, so that, for our present purpose, we cannot go back of that time.

The first table gives the total population, and the proportion of each occupation to it; the second and third only as matters of interest, the ages and the nativities of those engaged in each, for 1870 only.

| OCCUPATIONS. | 1850 Total Population 23,391,876. | Population. | 1860 Total Population 31,443,221. | Population. | 1870 Total Population 38,558,371. | Proportion. |
|---|---|---|---|---|---|---|
| Physicians . . . | 40,554 | 1 to 572 | 54,543 | 1 to 576 | 62,283 | 1 to 638 |
| Druggists . . . . | 6,139 | 1 to 3778 | 11,031 | 1 to 2850 | 17,369 | 1 to 2,219 |
| Pat. Med. Manuf'rs | 59 | 1 to 369,472 | 203 | 1 to 154,893 | 409 | 1 to 94,274 |
| Perfumers . . . . | 132 | 1 to 277,165 | 216 | 1 to 145,571 | 248 | 1 to 155,477 |
| Nurses . . . . | | | | | 10,976 | 1 to 3,512 |
| Midwives . . . . | | | | | 1,186 | 1 to 32,511 |

| OCCUPATIONS. | ALL AGES. | | | 10 to 15 | 16 to 59 | 60 and over |
|---|---|---|---|---|---|---|
| | Total. | Males. | Females. | Total. | Total. | Total. |
| Physicians, . . . . . | 62,383 | 61,858 | 525 | | 57,947 | 4,436 |
| Druggists, . . . . . | 17,369 | 17,335 | 34 | | 16,977 | 392 |
| Patent Medicine Manufacturers, . | 409 | 331 | 78 | 16 | 377 | 16 |
| Perfumers, . . . . . | 248 | 142 | 106 | 13 | 230 | 5 |
| Nurses, . . . . . | 10,976 | 806 | 10,170 | | 9,636 | 1,340 |
| Midwives, . . . . . | 1,186 | | 1,186 | | 766 | 420 |

| OCCUPATIONS. | NATIVITIES. | | | | | |
|---|---|---|---|---|---|---|
| | United States. | Germany | Ireland | England and Wales. | Scotland. | British America. |
| Physicians, | 55,920 | 2,362 | 913 | 983 | 268 | 793 |
| Druggists, | 14,273 | 1,470 | 339 | 607 | 88 | 189 |
| Patent Medicine Manufacturers, | 215 | 107 | 47 | 19 | 6 | 75 |
| Perfumers, | 186 | 14 | 13 | 10 | 1 | 8 |
| Nurses, | 8,325 | 458 | 1,346 | 387 | 92 | 170 |
| Midwives, | 709 | 272 | 40 | 30 | 6 | 4 |

| OCCUPATIONS. | NATIVITIES—Continued. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sweden, Norway, and Denmark. | France. | China and Japan. | Other countr's N. of Europe. | Italy. | Other countr's S. of Europe. | Other and Unknown. |
| Physicians, | 82 | 308 | 193 | 133 | 32 | 201 | 195 |
| Druggists, | 64 | 118 | 51 | 49 | 7 | 55 | 59 |
| Patent Medicine Manufacturers, | 1 | 2 | | 2 | 1 | 20 | 9 |
| Perfumers, | 2 | 10 | | 4 | | | |
| Nurses, | 71 | 54 | | 21 | 7 | 18 | 27 |
| Midwives, | 7 | 32 | | 10 | 2 | 11 | 3 |

From the first table, it will be seen that the physicians have increased in about the same ratio as the population, the variation being very trifling for the past twenty years, while the druggists have increased in very much greater proportion; the ratio being for the ten years, from 1850 to 1860, 79·7 per cent., while the increase of population was 34 per cent.; and for the period from 1860 to 1870, they increased 57·4 per cent., while the population increased but 23 per cent. The patent medicine manufacturers heve increased at eaeh interval over 100 per cent.

These figures are certainly very striking, and seem to point plainly to one reason of the many complaints of an absence of any profit in the drug business, namely, a business too much divided for all to be prosperous.

R.

*Philadelphia, December*, 1874.

## SUGGESTIONS AS TO A NEW PLAN BY WHICH THE NEXT REVISION OF THE PHARMACOPŒIA MAY BE RENDERED MORE COMPLETE AND THOROUGH.

BY J. B. MOORE.

On the Committee of fifteen persons appointed by the National Convention, at Washington, May, 1870, and into whose hands was placed the important charge of revising our Pharmacopœia, we find the names of nine physicians; consequently, the greater portion of the almost herculeân task of revising our national standard must have devolved upon comparatively few, the others being of but little practical utility in the work.

From such a committee, therefore, what could the pharmacists of this country look for but very immature and imperfect results, and especially where the laborious task had to be performed in the almost entire absence of the proper aid and support expected by them from the official representatives of the various medical and pharmaceutical colleges, societies, &c., interested in the work.

It appears from the Committee's own statement, in the preface to their work, that not only the task of "verification and testing," but that also of tedious and laborious original research and investigation, had to be performed by them; such as devising new formulas, altering and modifying old ones, &c., which involved a vast amount of time and labor in experiment, heavily taxing both the time and physical and mental energies of individual members of the Committee, whose hands and heads were already full to overflowing with business of their own. So that every pharmacist can see and appreciate what an unwieldly, important, responsible and, I might say, thankless job these gentlemen had on their hands—one that, indeed, involved the labor of years in investigation and experiment to properly mature and perfect, but which had to be hurried through in about two and a half years.

The Committee further remark that this troublesome part of their labor was "rendered necessary by the meagreness of details that characterized the majority of the reports submitted to the Committee, which in many cases presented criticism or suggestion without furnishing the precise form of alteration or amendment in the processes, or, in the case of new medicines, indicating their modes of preparation." They also very justly remark, "in view of subsequent revision, that the reports of medical aud pharmaceutical bodies which are interested

in the perfection of our national standard, should be made full and explicit in details, and leave to the Committee the task of verification and testing, rather than that of original investigation."

In view of this state of things, every pharmacist can well imagine what amount of labor fell to the lot of the Committee of Final Revision by the apathy and neglect of duty of the representatives of the medical and pharmaceutical bodies directly interested therein. And when it is considered that out of this committee of fifteen persons there were but six practical pharmacists—men who had the practical experience, skill and judgment requisite to make the necessary experiments to test suspected formulas, and to devise new ones when necessary, and to modify and improve those needing amendment—it is easy to conjecture what amount of work had to be done by this part of the Committee. Of course, such gentlemen as Drs. Wood, Carson and Bridges, and perhaps others among the medical members, whose qualifications for the task may be unknown to me, could be of great service in certain parts of the work, such as selecting articles and preparations, both old and new, that were presented for acceptance, and in passing judgment upon their claims to admission into the Pharmacopœia, and in arranging and assigning them to their proper positions therein, and also in criticising and examining the officinal list, and expurgating from it all such articles as have by experience been found useless, obsolete, and no longer worthy of a place in the Pharmacopœia. In these matters medical men can be of the most service; and, in fact, it is only in this part of the work that they could be of material aid. The most important and the most onerous duties of the Committee of Revision are such as belong to the pharmacist alone, and none but practical pharmacists are competent to properly perform them.

If my conceptions of the matter are correct, the majority, at least, of such a Committee should consist of practical pharmacists and medical gentlemen whose special studies and opportunities have qualified them for its duties.

Is there no remedy in the future for the state of things that has heretofore existed? What do the majority of physicians know about revising the formulæ of our Pharmacopœia? In fact, they do not pretend to such knowledge; for, perhaps, they have never worked a process, nor made a single pharmaceutical preparation in their lives.

Such medical gentlemen as Doctors Wood, Carson and Bridges are

exceptions to the general rule, and are eminently fitted for such a position, and if the other medical gentlemen composing the Committee had like opportunities with these, and their special studies had in like manner qualified them for the duties of the position, then my remarks, will, in a measure, lose their pertinence. But, in any event, the majority of our Revisory Committee should be practical pharmacists, who understand and fully appreciate the needs of their profession, and whose every-day practical experience at the dispensing counter and in the laboratory has qualified them to devise, modify and improve formulas, processes, etc., and these, too, should be men who are intelligent, industrious, energetic and progressive; not the old fogies or fossils of the profession. They should also be men who are not afraid to work, and whose hearts are in the work, and who feel a pride in seeing it well done.

Of course, the medical profession are interested in the work, and their aid in investigating and pronouncing upon the claims and fitness of new remedies, and the merits of old, unofficinal and the various semi-officinal remedies that are constantly seeking admission into the great family of officinal articles and preparations, is of importance. It is, therefore, proper that the medical bodies in the different sections of the country should be represented and consulted in the matter, through their official representatives, who can present the claims of their respective localities in the Committee.

But, to make the majority of the Committee to consist of medical men, I consider wrong and most unjust to the pharmaceutical profession, for whose use the work is especially intended. It is a work with the pharmacist of every-day reference and his guide in his manipulations in all officinal preparations. Physicians have but little to do with it, and there are, I have no doubt, hundreds of them that never see the work after it is published, and some, perhaps, that hardly know of its existence.

If it is necessary to have nine physicians in the Committee of Revision, in order to properly represent the interests of the medical profession, would it not be better to increase the membership of the Committee to twenty-five instead of fifteen, as heretofore, and make it consist of sixteen pharmacists and nine physicians? This would place the majority on the right side, and give the Committee a working force of sufficient capacity for effective service.

The meagre and imperfect aid given to the Committee of Revision

by the representatives of the various medical and pharmaceutical bodies at the last revision, as shown by the Committee's own statements, should prove a salutary warning to those bodies in the future to be more careful and discriminating in the selection of their delegates. They should choose only such as will pledge themselves to perform their duties faithfully and to the best of their abilities, and not to select those who simply accept the position for the honor derived from it. In such a position we want working, live, energetic and industrious men. There is no position in which a drone could be so much out of place as in the Committee of Revision of our national Pharmacopœia. I know that in almost all committees the great bulk of the work devolves upon a few of the members, the majority being mere ornaments, and I do not suppose that the committee in question differs much in this respect from all other committees.

Now, to counteract this, why could not the labor be proportionally divided among the members? The Pharmacopœia should be sectioned off, giving to each member or group of members in the different localities, as far as practicable, that portion of the work for which their education, taste and qualifications best fit them, giving to the medical members that part involving most knowledge of medicine; while to the pharmaceutical members should be assigned that portion involving a knowledge of chemistry and practical pharmacy. This would prompt each member to a more faithful performance of his share of the work of revision, and would tend in a measure to prevent the embarrassment and confusion that might otherwise occur when the labor is done by the whole Committee in common, and the reports of these sub-committees could be discussed and examined by the whole Committee at its regular sittings.

In view of the difficulty heretofore experienced in securing full and satisfactory reports from the delegates who represent the various medical colleges, colleges of pharmacy, &c., in the National Convention, who are appointed to prepare reports on the revision of the Pharmacopœia, in aid of the Committee of Revision, would it not be well to try the virtue of the plan of offering suitable prizes for the best reports on the different sections of the Pharmacopœia?

One, for instance, for the best report or essay on fluid extracts and on percolation, as applied to their manufacture; and another on the solid extracts; another on tinctures, and so on through the whole work.

The Pharmacopœia may thus be sectioned off according to its regu-

lar divisions, except in cases when there are but few preparations under one head, and where but little change is necessary or can be made, then two or more divisions may be included in one report.

Let the value of the prize be adjusted according to the supposed magnitude of the labor involved in the task and its importance. The prize may consist of money alone, as this is a well-known, powerful, diffusible stimulant in all the affairs of life, or it may be money together with a handsome certificate, a medal or token of some kind, as a permanent evidence of what has been achieved. This kind of reward would be a powerful inducement for pharmacists to compete for the prize.

Money, for this purpose, could be raised, partly from the funds of the medical colleges, colleges of pharmacy, &c., that could afford to contribute, and partly from the voluntary contributions of individual members of the medical and pharmaceutical professions, and, if necessary, a small contribution could be levied upon the proceeds of the sale of the work, when published. By these means, I am satisfied, there would be little difficulty in procuring the necessary funds for the purpose.

The announcement of the scheme should be made *at least five years before* the meeting of the National Convention, in order to give experimenters and investigators time to complete and perfect their labors. For such a work, requiring much time, especially when undertaken by men who are trammeled and encumbered by the cares and labors, and almost constant interruption of business, ample time should be given.

Besides, it takes time to test the stability of new preparations, and also that of old ones, as made by modified formulæ and processes. The pharmacist may make what he believes to be an improvement in a defective formula and process, and be much elated and feel proud of his skill and success; but, alas! in from four to six months, or, perhaps, much sooner, "comes a frost, a killing frost," and he beholds his hopes blasted, and experiences the mortification of witnessing his preparation spoiled by the insidious and destructive influences of time. The writer has been the victim of such disappointments in more than one instance.

These reports should be ready and be rendered to the National Convention at its meeting, when they may be read and examined, and full discussion be had upon the relative merits, and the whole matter can be then handed over to the Committee of final revision, to whose wisdom and judgment will be left the awarding of the prizes.

In this way I have no doubt most excellent, scientific and full reports could be obtained that could not be procured by any other means.

This plan would bring out much of the latent talent of the country, and would stimulate experiment, investigation and research throughout the land, and have lasting good effects upon the interests of our profession generally. And that which would render the plan more valuable and hold out the greatest promise of good reports, is the fact that it would leave every pharmacist the privilege of choosing his subject, and laboring in that portion of the vineyard which best suits his tastes, and for which his knowledge and talent best adapt him. While one would select fluid extracts, or one of the other classes of galenical preparations, another would choose a section that would involve more chemical knowledge. Consequently, each report would be the choicest product of each man's labor and peculiar skill.

We have many industrious, energetic, skilful and ambitious pharmacists and chemists in this country, and there are, I have no doubt, many that would enter for the prize and for the honor that securing it would confer.

This plan might also be the means of drawing out many secret and valuable formulas and processes that have been hoarded by selfish and illiberal pharmacists for their own special uses, through a feeling somewhat akin to that which makes the miser hoard his gold. The invitation to competitors for these prizes should not be confined alone to the delegates appointed to the National Convention, but should be cordially extended to every member of both the medical and pharmaceutical professions.

Medical men could render valuable aid in this important work, in making reports that would embrace a list of the various articles and substances that are unofficinal, belonging to the Materia Medica list; also the various and new unofficinal preparations and remedies that should be given a place in the officinal list, and they should be accompanied by the reasons upon which their claims are based. The report should also embrace a list of articles that are *now* officinal that should be dismissed, and the reasons for their dismission. Accompanying the report, a special report might be made on the new remedies that have loomed up and become popular in the last decade, giving a collated report of the evidence of their merits, as obtained from the various medical journals, and also from other standard authorities, and, in fact, all other available sources. There are also many other interesting and

important features that might be embraced in such a report, that will readily suggest themselves to the intelligent physician, that might prove of incalculable advantage and importance to the Committee of Revision, and greatly aid them in their laborious and important task.

The next meeting of the National Convention will take place in May, 1880, less than six years from this time, and there should be some initiatory steps taken to either carry out the plan herein suggested, or some other similar one that may be more practical, and which will insure a more careful and more thorough revision of our Pharmacopœia than we have yet had.

How the plan herein proposed of offering prizes can be put into operation and be carried out, I will leave to those who have, for years, had to do with the business of revision, and who are familiar with its workings. Who would be the parties possessed of the power or authority to act in the matter, I do not know. Whether the medical and pharmaceutical bodies interested in the work of revision, or whether it would be the business of the National Convention, I should suppose, however, that the whole matter could be arranged by a committee formed of one or more members from each of the medical and pharmaceutical bodies authorized to send delegates to the National Convention. This committee should be vested with authority to devise and perfect measures by which the plan may be rendered feasible and may be successfully carried out, and also to raise the necessary funds for the purpose.

The suggestions herein offered are simply the crude conceptions of one inexperienced in the business of revision of our Pharmacopœia, and are offered with the hope of awakening the attention of the profession in the matter, and of provoking discussion and eliciting the opinion of the profession on the subject. For certainly some better plan than that heretofore adopted seems to be necessary to insure a more thorough and complete revision of our national standard.

*Philadelphia, December*, 1874.

---

## GLEANINGS FROM THE EUROPEAN JOURNALS.

BY THE EDITOR.

*Preparation of Crystallizable Formic Acid.*—Berthelot places completely dessicated formiate of lead into a U tube, one end of which is drawn out and bent downward; it is placed in an oil bath kept at a

temperature not exceeding 130° C. and dry sulphuretted hydrogen passed through it. The product is subjected to fractional distillation, when a pure acid may be obtained, which crystallizes in a refrigerating mixture, and fuses at 8°, 6 C., which temperature is considerably higher than has been observed heretofore.—*Bull. Soc. Chim. de Paris*, 1874, p. 440.

*Dry Acetate of Ammonium* is obtained by Berthelot, by dissolving glacial acetic acid in ammonia, keeping the retort cool, and adding enough water to prevent the crystallization of the salt during the neutralization; the solution is evaporated in a current of dry, gaseous ammonia until the liquid solidifies on cooling. It is then introduced into a large capsule, and this placed upon caustic lime, under a large bell glass, in which a considerable quantity of ammonia gas is injected. After a few days the crystalline mass is broken, and the capsule replaced as before upon lime in an ammoniacal atmosphere, under the bell glass. When this operation has been repeated several times, a perfectly pure acetate of ammonium is obtained, which crystallizes in large needles, like nitrate of potassium, and resembling formiate of ammonium; it is extremely soluble in water, and does not possess an acid reaction.—*Ibid.*

*The Composition of Pirsch-Baudoin's Imitation of Silver* is given as follows: Copper 71, nickel 16·50, cobalt 1·75, tin 2·50, iron 1·25, zinc 7 (aluminium 1·5).—*Pharm. Cent. Halle*, 1874, *No.* 42.

*Destruction of Insects by Compositæ.*—Four grains of a good insect-powder sprinkled upon a fly contained in a vial, must, according to H. Kalbruner, produce stupefaction in one minute, and death in two or three minutes. Tested in this way, he found the flowers of the following plants entirely worthless: *Chrysanthemum leucanthemum*, L., *Chrys. coronarium*, L., *Anthemis arvensis*, L., *A. cotula*, L., *A. tinctoria*, L., *A. nobilis*, L., and *Inula pulicaria*, L.; likewise the herb of *Pyrethrum roseum*, M. B., and *P. cinerariæfolium*, Trev. A slight stupefying effect was produced by the flowers of *Tanacetum vulgare*, Lin., and *Pyrethrum corymbosum*, Sm. The flowers of *Pyr. parthenium*, Lin., and *Pyr. inodorum*, Lin., stupefy flies and kill them in from one to two hours; their value as insecticides is therefore very slight. A few commercial insect-powders come up to the requirements mentioned before, while others require fifteen to thirty minutes to kill a fly. The flowers of *Pyr. cinerariæfolium*, which is indigenous to Dalmatia, were observed to be rather more active than those of *P. roseum*, perhaps because the latter

have a large number of ray florets, the disk florets being regarded as more active.

The author believes that the culture of these species will not be remunerative as long as good flowers can be obtained at a moderate price from Western Asia, and from Dalmatia.—*Zeits. Oest. Apoth. Ver.* 1874, *No.* 29.

*Adulterated Lycopodium.*—Scriba found some lycopodium adulterated with powdered French chalk; and Hager found in one sample 8·9 per cent. impurities, consisting of powdered rosin and well dried potato starch.—*Pharm. Centr. Halle*, 1874, *No.* 43.

*Red Marking-Ink.*—According to Th. Wegler, egg albumen is diluted with an equal weight of water, rapidly stirred with a glass rod until it foams, and then filtered through linen. The filtrate is mixed with a sufficient quantity of finely levigated vermilion until a rather thick liquid is obtained, which is used for marking with a quill; the rear side is then touched with a hot flat-iron, whereby the albumen is coagulated; the marking is affected neither by soap, alkalies or acids. The ink may be preserved for a long time, in well-corked vials, without depositing the vermilion.—*Ibid.*, *No.* 44.

*Cologne Water.*—A mixture of oils is made as follows: Oil of neroli 2 p., oil of rosemary 1 p., oil of lemon 3 p., oil of bergamot 1 p., and oil of orange 3 parts. One kilogram of this mixture is dissolved in 60 litres of alcohol (85 to 90 per cent.), the solution heated to 60° C. (140° F.) and subsequently filtered. The heating effects the blending of the perfumes in a short time, which otherwise takes place only after several months.—*Ibid.*

---

## PREPARATION OF SULPHOVINIC ACID AND ITS SALTS.

BY T. L. PHIPSON, PH. D.

The preparation of sulphovinic acid is by no means an easy operation, and, as certain compounds of this acid are now beginning to be used in medicine, perhaps the following observations may not be devoid of some practical interest.

When sulphuric acid and alcohol are mixed together without any special precautions, the temperature rises, and a certain quantity of sulphovinic acid is formed at once; but, as in the formation of this acid a certain proportion of water is set free, and prevents the continuation of the reaction, it is never completed, even after the mixture has been

kept for some hours in a water-bath, and at a higher temperature decomposition at once ensues. It may, nevertheless, be quite possible to obtain a sulphovinic acid tolerably pure with alcohol and sulphuric acid alone (instead of the present tedious method based on the decomposition of the baryta salt), by keeping the mixture at 100° for two or three days, and not acting upon too large a quantity. I intend to try this experiment shortly.

To obtain sulphovinate (ethyl-sulphate) of lime, it is best to mix equal volumes of concentrated sulphuric acid and alcohol; they may be mixed without any special precautions when small quantities only are used, and the uncovered vessel containing the mixture must be transferred to a water-bath and kept there eight or ten hours at least, during the whole of which time the temperature should be 100°, or nearly. The liquid will then have acquired a slight degree of fluorescence and a decided odor of ether (not an odor of sweet oil of wine), and should be only very slightly colored. When cool, it is added drop by drop, to about twenty times its volume of cold, distilled water, carefully avoiding any rise of temperature, and keeping the liquid well stirred.

This solution is saturated with pulverized chalk, added in small quantities at a time, until effervescence ceases. When a slight excess of chalk has been added, filter off the sulphate of lime, heat the filtrate in the water-bath with a little carbonate of lime for about a half an hour, filter while warm, and evaporate at a heat not exceeding 100° till a permanent saline layer forms at the surface;* then place the capsule in a dry or moderately dry place. In about twenty-four hours the crystals are formed; the mother-water will give another crop when allowed to evaporate over sulphuric acid or chloride of calcium. If the chalk contains iron or manganese, their sulphovinates remain in the mother-water, and are perfectly separated by pressing the crystals.

Sulphovinate of lime crystallizes rather slowly, even in very concentrated solutions; it forms large, brilliant plates, something like chlorate of potash; its composition is represented by $C_4H_5O,SO_3+CaOSO_3+2HO$; it is very soluble in water and in alcohol. The impure salt can easily be purified by recrystallization from alcohol.

Sulphovinate of baryta has a similar composition and similar properties; it can be obtained in the same manner. When the crystals are pure, they form very large, brilliant plates, oblique rectangular prisms, modified in certain angles. Both this salt and the lime-salt often per-

* During the evaporation, a slight, but distinct, odor of butyric acid is perceptible.

sent a peculiar pearly aspect, which I do not observe on small, pure crystals; these are perfectly transparent, and I believe this pearly aspect to be mainly owing to minute quantities of carbonate or sulphate dispersed through the larger crystals.

The sulphovinate of soda could be obtained pure from either of these salts without difficulty, but, for the preparation of the pharmaceutical product on a large scale, it is more economical to make it directly. I hope to refer again to this compound.

*London, November 9th,* 1874.

---

## NOTE ON SCAMMONY.*

BY THOMAS GREENISH, F.C.S.

The result of a microscopic examination of different samples of virgin scammony may at the present time possess some interest, and if it gives rise to a discussion, some remarks may be elicited possessing more intrinsic value than the paper itself.

I was induced to undertake this subject from having observed that the presence of starch was usually detected by iodine, and that little attention had been given to determine the particular kind of starch granules, whether of wheat, or those peculiar to the scammony root itself.

The scammony which appears in English commerce is principally of four kinds—virgin scammony, Angora scammony, Syrian scammony, and Skeleep scammony.

Of the virgin scammony not more than 800 lbs. arrives in this country yearly, none of which is again exported. Of the Angora and Syrian scammonies about half a ton each are annually imported. Of this quantity half remains in this country. Of the Skeleep scammony about one ton annually arrives in London, only half of which is again exported.

The Angora and Syrian scammonies vary in amount of resin from 46 to 76 per cent., while the Skeleep contains about 36 per cent. only, the remainder being impurity.

We have thus one ton of adulterated scammony remaining in this country every year. According to Mr. Maltass, the peasants adulterate scammony before bringing it into the market, the adulterations be-

* Read before the British Pharmaceutical Conference, August 7th, 1874.

ing wheat starch, wood ashes, earth, gum arabic or tragacanth, pounded scammony roots, etc.

The starch granules peculiar to the scammony root are shown in this diagram; they are, for the most part, compound, composed of two,

three, and sometimes more granules. In shape the single granules resemble those of Tacca, muller-shaped, with dihedral base, and the hilum approximates to that seen in the starch of orris-root. With polarized light the arms of the black cross run down in the direction of those lines marked on the grains. Occasionally a lenticular grain is met with, but the hilum or markings about the hilum serve to distinguish it from that of wheat starch, to which it otherwise bears a close resemblance.

The starch grains from the scammony root vary very much in size about the centre of the root, where the texture is loose; some granules will be found very large, at the same time in company with these will be found a good many of very variable size.

From an examination of a variety of samples of virgin scammony from different sources, I may state as a result, that the *lump* was in every instance free from the starch of scammony-root or any other starch, and that every sample of *powdered* virgin scammony contained more or less of the scammony starch, and some of them a little wheat starch in addition. A few also contained particles of the tissue peculiar to the root with the starch grains still in it, and I would observe that the

examinations here referred to were made on the finest samples of virgin scammony.

In these investigations I think it very desirable, having determined the presence of starch, to distinguish the granules of the scammony starch from those of wheat. I consider that the presence of the scammony starch indicates an admixture of inferior scammony, and more especially when it is accompanied by some of the tissue of the root. There exists a theory to account for the wheat starch, that it is used to prevent the semi-solid gum resin from sticking to the hands. If this were correct, I should expect to find it *especially* in that powder which adheres to the outside of the lumps of scammony, constituting what may be termed the bloom upon it; but I do not find this to be the case in the samples which I have examined, neither does the greyish-white powder which covers the lump consist, as far as I have observed, of chalk. It seems to me to be merely the particles of scammony reduced to a powder by the friction of the lumps against each other, and it is of the same quality in every respect as the lump from which it has been detached.

I can only account for the presence of starch in the powdered virgin scammony, by reference to the practice of picking, the virgin scammony in lump from the chest, and suggesting that after a good deal of picking there must remain a quantity of fragments, too small for further picking, but not for grinding. To this must be added the fact, that sometimes in a chest a good piece of virgin scammony may have a very inferior one stuck to it, so as to escape observation. It is much to be desired that flour and starch, when spoken of in connection with scammony, should not be considered synonymous. I have never met with cellular tissue, such as I should expect to find if flour had been present.

It is an intesting question, whether the gum resin possesses any value over the more uniform and less costly resin obtained from the dry root. If it should prove that the resin is equally active and more reliable than the exuded gum resin, then the pharmacist would be independent of the Greek of the Levant, or the Turk nearer home.

I have examined the mineral matter scraped from the outside of a fine specimen of the root, and find it to be, as already shown by Professor Attfield, a calcareous earth, which effervesces with hydrochloric acid, indicating that it was grown on a chalky soil.

## LABORATORY NOTES.

BY J. LAWRENCE SMITH, OF LOUISVILLE, KY.

From long experience I have found it vain to rely upon manufacturers of chemicals for reagents of that exceeding purity which all analytical chemists often require for conducting their researches, and it has been my habit, through a long experience in analytieal chemistry, to prepare with my own hands certain of the chemicals used by me and, while many of the processes of preparing them embrace nothing specially novel, still my experience in making them has been of certain importance to others, and from time to time I will take opportunities to give more general information of these methods, which may possibly be of service to some, especially as, while seeking first for purity, I have been obliged to economize time by the least amount of manipulation.

*Pure Carbonate of Soda.*—For many years all the carbonate of soda used by me in mineral analysis has been prepared in the following method, viz., by making oxalate of soda and then decomposing it by heat. It can be described in the shortest possible manner by giving the figures and method employed for obtaining a given result. The carbonate of soda commonly used has been the crystals of ordinary sal soda, washed with a little water to detach the adhering dust, or if one has pure soda at his command, it can be used to advantage. The oxalic acid used is the ordinary oxalic acid of the shops once recrystallized, of which crystallized acid I always have a supply of several pounds in my laboratory.

63 grammes of oxalic acid and 143 grammes of sal soda are dissolved by heat in 200 c.c.m. of distilled water—filter the solution if necessary —to the solution of soda, when cold, add the solution of oxalic acid, just hot enough to keep from crystallizing; add it by degrees, stirring well; after the mixture is completed, it is expected that the solution will have an alkaline reaction, to keep any trace of soda in solution; the oxalate of soda will be precipitated in great part shortly after the operation is completed; let stand for a short while to cool completely, decant the supernatant liquid, add a little distilled water, break up with a stirrer the lumps of crystals that may have formed, throw on a filter over a Bunsen aspirator, using a six-inch filter, wash with about a half litre of distilled water, and let dry. This may be placed aside in a glass bottle if not needed at once for forming carbonate of soda; the quan-

tity of dry oxalate produced is .30 grammes. To convert into carbonate project the oxalate little by little into a platinum capsule over a good-sized Bunsen burner; after being strongly heated, the oxalate is decomposed into the carbonate, and, if heated high enough to be fused, will furnish about 23 grammes of fused carbonate of soda; fused or not, dissolve in water, filter, evaporate to dryness, dehydrate over a naked flame, and granulate it by stirring when hot.

Double or quadruple the quantities above given may be operated upon at once with similar results. The carbonate of soda thus made is perfectly free from chlorine, sulphuric acid, silica, or other impurity that will interfere with its use in analysis.

*Pure Carbonate of Potash.*—It may be wrong to use the word pure in connection with the preparation of this substance in the manner to be described, as it may contain at the end of the operation a trace of nitrate of potash. The starting point is pure nitre, which is a cheap potash salt, and can be readily purified by repeated crystallization; the other is oxalic acid, the commercial acid crystallized once or twice; 50 grammes of pure nitre and 100 grammes oxalic acid are placed in a platinum capsule; to this is added a small qnantity of water, and heated over a gas burner; before the mixture is entirely dry, a second portion of water is added and the heat continued until the mass is brought to dryness, at which time nearly all the nitric acid of the nitre is expelled; the heat is now continued, and the whole mass brought to redness, breaking up the lumps with an iron rod, when the oxalate of potash formed will be decomposed into the carbonate; the mass is treated with water, filtered, dried and granulated over the flame; this furnishes about 31 grammes of carbonate of potash which, as I have already said, may contain a little nitre, but this in no way interferes with the ordinary use of carbonate of potash in making fusions. For this purpose, I commonly mix equal parts of carbonates of soda and potash at the time they are required for use.

*Absolute Alcohol.*—This substance, as obtained in commerce, very seldom marks more than 98 or 99 per cent. It is, however, not unfrequently made in our laboratories, and when this is done the usual method is employed of pouring strong alcohol on lime until the lumps of lime are covered. This method of proceeding gives a thick magma which, when heated over a water-bath, allows the alcohol to pass over but slowly, and much of the alcohol is lost from the impossibility of the heat penetrating the thick mass. The method I follow differs from

this in no way except in the quantity of lime employed; using the smallest quantity of lime necessary to abstract all the water, it is surprising how complete the lime will perform its function in this respect. Take, for instance, one litre of alcohol of 94 per cent.; this contains about 60 grams of water; if to this be added 120 grams of good and fresh burnt lime, requiring about 40 grams of water to convert it into hydrate, actual experiment proves that, when kept in contact with the alcohol a sufficient length of time, it accomplishes this absorption of water, and the alcohol decanted from the precipitated lime will be fully 98 per cent.

Operating upon this fact, I have been long in the habit of supplying myself with alcohol of 98 and 100 per cent., by proceeding in the following manner: I have in my laboratory three or four two-litre bottles, into each of which I place 1½ litre of 94 per cent. alcohol, the strongest alcohol sold in commerce; to this is added 180 grams of fresh burnt lime of the best quality broken up into a coarse powder. These bottles are set aside on the shelf and agitated from time to time, the oftener this is done the more rapid will the reaction be accomplished. A week or ten days will usually suffice, when the bottles are allowed to remain at rest, and the hydrate of lime will settle in a few days, and by a siphon two-thirds of the original alcohol can be drawn off free from lime, which marks 98 per cent. alcohol, and when filtered, and 50 c.c.m. evaporated to dryness there will be left only the merest trace of lime, less than one-half milligramme. But, of course, redistillation is so simple that if we wish the alcohol at 98° it can be readily distilled over a water-bath. The magma remaining in the bottle, when distilled over a water-bath, furnishes the remainder of the alcohol about one-half per cent. higher.

When absolute alcohol is desired, take the alcohol just as it has been siphoned off or distilled from the magma, put it into a convenient flask for distillation, and to each litre add 120 grams of lime in coarse powder, attach to a Liebig condenser inverted, so that the alcohol will run back into the flask when condensed; this is continued for an hour and a half or two hours. The condenser is then placed in its normal condition and alcohol distilled over which will mark 100 per cent. Recently I have learned that there is a method adopted of making the absolute alcohol by one distillation, operating by the inverted condenser first, but in this process the amount of lime called for is the usual quantity, whereas I find that by reducing the lime to its minimum, and always having bottles ready to furnish 98 per cent. alcohol, the oper-

ation is facilitated, and the loss diminished. So that with the ordinary conveniences and appliances of the laboratory, that are always at hand to be mounted, I can, with fifteen or twenty minutes of *personal attention and manipulation*, obtain a litre or two of absolute alcohol. Of course, the time for the reaction of the materials and the distillation is not referred to, as this requires little or no supervision.—*Am. Chemist*, *Oct.*, 1874.

---

## CHEMICAL STUDIES OF THE PEPPERS OF COMMERCE.

BY A. WYNTER BLYTH, M.R.C.S., L.S.A., A.K.C.,

Analyst to the County of Devon, Medical Officer of Health, &c.

It will be indispensable for some time to come to accumulate facts on the properties of articles of food in the *pure* state. The exact amount of ash, the solubility of substances in different liquids, the specific gravity of the aqueous infusion, &c., many of them, when applied to foods, wholly uninteresting to the ordinary chemist, become of great value in the technical examination of articles suspected of adulteration. However unimportant some slight variation in solubility, for example, may be in a purely chemical sense, yet if that variation be, within certain limits, constant, it is of the greatest utility to the Public Analyst.

The peppers I have examined were obtained from the importers in the berry, and ground by myself; they are, I believe, specimens of pure pepper. The following are the methods adopted in the examination:

The ash was burnt at a very low temperature in a platinum dish, supporting a chimney to increase the draught; the soluble ash was obtained by boiling the ash with water, filtering, evaporating the soluble ash down in a platinum dish, heating to dull redness, and weighing; the aqueous extract by putting 4 grams of pepper in a large flask with 500 c.c. of water, distilling over 200 c.c., returning these into the flask, when cool filtering, weighing, and evaporating $\frac{1}{10}$th; the ammonia, by taking 5 c.c. of the last liquid and distilling it with 50 c.c. of alkaline permanganate by Wanklyn's method; and the alcoholic extract by treating about 1 grm. of the dry pepper with repeated quantities of alcohol, and boiling for some time in a flask connected with a reversed Liebig's condenser. I have not yet estimated the piperin in the peppers; indeed, although it can be extracted with comparative ease, the crystallization of the alkaloid and the separation of the resin

takes up so much time that the process, however satisfactory, cannot be very attractive to analysts, who have to examine a great number of samples in a short time.

*Ash.*

| | Soluble Ash. | Total Ash. | |
|---|---|---|---|
| | | Pepper in the Dry State. | Pepper in its Ordinary Condition. |
| | Per cent. | Per cent. | Per cent. |
| Penang, | 2·2120 | 4·189 | 3·8480 |
| Tellicherry, | 3·3800 | 5·770 | 5·3460 |
| Sumatra, | 2·2606 | 4·316 | 3·3340 |
| Malabar, | 3·4530 | 5·195 | 4·6740 |
| Trang, | 2·5380 | 4·775 | 4·2110 |
| A white pepper, ground by myself, bought at a retail shop, | 0·5584 | 1·120 | 0·7889 |
| Long pepper, | 4·4720 | 8·308 | 7·1543 |

The first five peppers give, as the mean of the soluble ash, 2·84 per cent. of the dried substance, the two extremes being respectively 3·453 and 2·212. The mean of the total ash of the five peppers is 4·845 per cent., the two extremes being 4·189 and 5·770.

*Hygroscopic Moisture.*

| | Per cent. |
|---|---|
| Penang, | 9·531 |
| Tellicherry, | 12·908 |
| Sumatra, | 10·103 |
| Malabar, | 10·548 |
| Trang, | 11·664 |
| Long pepper, | 10·778 |

It is worthy of note that, as the peppers were finely powdered and kept on the water-bath for many hours, besides water, the volatile oil would, to a considerable degree, be dissipated.

The total loss of weight may be stated generally at 11 per cent.

*Alcoholic Extract.*

| | Grms. per cent. of Dry Pepper. |
|---|---|
| Penang, | 7·650 |
| Tellicherry, | 7·836 |
| Sumatra, | 6·450 |
| Malabar, | 6·375 |
| Trang, | 6·300 |
| The white pepper before mentioned, | 7·650 |
| Long pepper, | 2·600 |

The extract was thoroughly dried before weighing; it may be said

to be never less than 6 per cent. in black and white peppers. The small extract yielded by long pepper is noteworthy.

*Aqueous Extract.*

| | The Dry Substance yields to Water. |
|---|---|
| Penang, | 18·335 |
| Tellicherry, | 16·500 |
| Sumatra, | 17·500 |
| Malabar, | 20·375 |
| Trang, | 18·175 |
| Long pepper, | 16·825 |

The total ammonia yielded, in the manner before mentioned, expressed in percentage:

| 100 grms. of— | $NH_3$. | Nitrogen. |
|---|---|---|
| Penang pepper yield to water, | 0·450 | = 0·370 |
| Tellicherry " | 0·450 | = 0·370 |
| Sumatra " | 0·375 | = 0·310 |
| Malabar " | 0·295 | = 0·243 |
| Trang " | 0·325 | = 0·300 |
| Long " | 0·175 | = 0·144 |

As 100 parts of piperin contain 4·9 of nitrogen, if the nitrogen be considered as dissolved piperin, the mean of the piperin boiling water takes up, and when cold retains, of the first five peppers = 0·017. The small yield from long pepper is a great distinguishing mark.—*Chem. News* [*Lond.*], *Oct.* 9, 1874.

*Barnstaple, Sept.* 23, 1874.

---

# MINUTES OF THE PHARMACEUTICAL MEETING.

The third meeting of the session was held December 15th, 1874. A. P. Brown in the chair. Number in attendance, thirty-three. The minutes of the previous meeting were read and approved. The following presentations were made to the cabinet: Prof. Maisch, on behalf of Messrs. Kurlbaum & Co., of this city, two samples of crude material from which borax is prepared; Tincal, from the East Indies, which is no longer used for refination in this country, and Hayesine, called after the mineralogist, a native borate of calcium from Peru, which has been used by Messrs. Wood, of Glasgow, for this purpose. Whether the advent of the cheaper California product has not so lessened the price of refined borax as to render

the former too dear an article to consume, could not be ascertained with certainty. These specimens were accepted with thanks. Prof. Remington, on behalf of Messrs. Powers and Weightman, presented a basket, consisting of a beautiful crystallization of copper sulphate, coated with Damar varnish, thus protecting the salt from atmospheric influences. Messrs. Wood & Denmark, of Medford, N. J., presented oils of gaultheria and solidago.

A. P. Brown stated he had found the market supply of oils of Ceylon cinnamon not of the right quality, it being adulterated with oils of sassafras and cloves. The same adulteration has been noticed by several of the members present.

The library was the recipient of the *Chemists' and Druggists' Diary*, 1875, presented by the proprietor of the London *Chemist and Druggist.*

Prof. Maisch read a paper by George W. Kennedy, upon the occurrence of arbutin in *Kalmia latifolia* (see page 5), and remarked that this paper was of much interest, he having suggested the prevalence of arbutin in many ericaceous plants (*Am. Jour. Phar.*, 1874, p. 314). Also a paper by himself on substitutions lately found in the market of agaric and *Gossypii radicis cortex* (see page 10). This paper was received with much interest, all being surprised that the cotton-root bark of commerce was of uncertain origin, with one exception. Mr. Blair had made fluid extract of cotton-root bark only, which had a deep brown-red color, and, at the present time, was preparing an extract from a root which was different in appearance from that of *Gossypium herbaceum* or supposed *Populus* spec. shown here by Prof. Maisch. He suggested that as this was a matter of general importance, we use our exertions to determine by comparison of our stocks and sources of supply, which drug has the properties ascribed to cotton-root. Prof. Remington said that it was hardly to be supposed that these two drugs, from different plants, had identical properties. He had prepared a fluid extract by the Pharmacopœia process, which was light in color, but could not say what was the source of the bark used.

W. H. Walling, during a sojourn in the South, had been told by physicians that it was the root of the cotton plant they used. R. V. Mattison had prepared fluid extract of gossypium, and recently, in conversation with a manufacturer of fluid extracts, was shown a large bale of cotton-root, which was similar in appearance to the specimen shown by Prof. Maisch, as being probably the root bark of a *Populus.*

E. M. Boring had seen a fluid extract, light in color, which deposited until very little was left in solution.

Prof. Maisch remarked that, in going over the reports, he had found no instance in which physicians had made experiments with cotton-root bark, of the true origin of which they appeared to be aware.

A paper by F. B. Power, on elaterin (see page 1), was read by Prof. Maisch, who remarked, that, as this body is occasionally being prescribed, this paper was of more practical importance than would at first seem. These papers were all accepted and referred to the Publication Committee.

A. W. Miller, M. D., stated that he had received from Mr. Hymer of Wallace Bros. & Stephenson, Statesville, N. C., the first answer to the calls from the Committee on Adulteration of the American Pharmaceutical Association. In it, he stated he had found *Monarda punctata* substituted by *Pycnanthemum incanum.* This substitution has been noticed by Prof. Maisch (see *Amer. Jour. Phar.*, 1872, p. 197).

Both plants are in some parts known by the name of horsemint, and, as they are quite harmless, no injury would result.

P. P. Fox exhibited an india-rubber funnel, prepared for straining, by closing the lower orifice with a cork, and, immediately above it, piercing the tube with several holes. This arrangement enables a vial to be readily filled with two liquids of different densities, so that no admixture will take place. He had found it particularly of use in preparing citrate of magnesium by the method of Dr. H. T. Bond (*Drug. Cir.*, 1873, p. 176).

Dr. Pile thought this contrivance would be of service in this case, although he operated in a little different manner, preferring to have the potassium bicarbonate in solution, nothing being requisite but agitation to complete the preparation. Mr. Blair preferred to use sugar in place of syrup, filter the entire solution, and rely on a good long cork. R. V. Mattison preferred to make a dense solution of citrate of magnesium containing the syrup, and complete by filling the bottles with carbonic acid water drawn from the fountain. No objection was made to the officinal proportions, these being but variations in the mode of conducting the process.

Dr. Miller wished to caution against the purchase of cheap sugar-coated quinia pills. There were in the market 45,000 such pills which do not contain a trace of quinia. They were made from muriate of cinchonia, furnished by a New York house as sulphate of quinia to some of the makers of sugar-coated pills, and by them thrown back on the hands of the dealer upon the discovery of the fraudulent nature of the article.

Mr. Blair called attention to the construction which the Internal Revenue Officers place upon the law. They claim the right to go through our premises from garret to cellar, whether they have reason to believe the law relating to the stamping of articles was being evaded or not. Those who are familiar with the construction and intention of the law, are of the opinion that it did not apply to the retail apothecary, but was intended for liquor and segar manufactories. The Government officers further claim, that a refusal on the part of the apothecary to permit such domiciliary examination makes him subject to a fine of $500. Where there is reason to believe the law is being violated, and the officer is refused admission, it seems but proper that he should report to his superior, and procure a special warrant to examine the premises. Another understanding is, that goods exposed for sale only must be stamped. The fact that these officers have, or assume, the right to make these visits, is subjecting apothecaries to an annoyance which is unjust, and a suggestion was made that we use our best exertions, individually, with our representatives in Congress to have this law repealed or modified.

W. H. Walling urged an organized effort to curtail Sunday traffic.

On motion, adjourned

WILLIAM MCINTYRE, *Registrar.*

---

# PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

---

CAMDEN PHARMACEUTICAL ASSOCIATION—The annual meeting was held on Friday afternoon, November 27th, when the following officers were elected for

the ensuing year: President, Simeon T. Ringel; Vice-president, J. A. Armstrong, M. D.; Secretary, Albert P. Brown; Treasurer, L. M. Pratt; Librarian, O. G. Taylor; Library Committee, S. W. Cochran, A. P. Brown, F. G. Thoman.

---

The St. Clair Pharmaceutical Association of Southern Illinois held its general meeting December 8th. Mr. H. Steingoetter presiding. After the minutes of the previous meeting, and the reports of committees and officers had been read, it was, upon motion of Mr. A. G. F. Streit, resolved to adopt, for the present, the code of ethics as published in the Proceedings of the American Parmaceutical Association for 1852.

The following gentlemen were duly elected officers for 1875: President, Mr. H Steingoetter; Vice-president, Mr. Wm. Feickert; Secretary, Mr. A. G. F. Streit; Treasurer, Mr. A. Rudolph.

Mr. A. G. F. Streit reported that a pharmacy law was introduced in the Legislature, which the Chicago College of Pharmacy is now trying to amend, and suggested that the united action of the two pharmaceutical bodies in the State, in this matter, would exercise a beneficent influence, and, to a great extent, secure the passage of a good pharmacy law for Illinois. For this purpose a Committee on Pharmaceutical Legislation was subsequently appointed, consisting of Messrs. N. T. Baker, Wm. Feickert, A. Rudolph and A. G. F. Streit.

---

Pharmaceutical Society of Paris.—M. Regnauld presided at the meeting held November 4th.

M. Husson, of Toul, sent a note relative to the decomposition of iodide of potassium by sunlight. He proposes to add to the starch paper a little albumen, which, in case of decomposition by sunlight, will absorb the iodine, and allow also to distinguish the action of ozone.

A note by M. Vidau was read, concerning the vermifuge properties of oil of eucalyptus. A zouave had been troubled for a long time with a large number of *Oxyuris vermicularis*, for which calomel, kusso, Corsican moss and other remedies had been tried in vain; he was cured in nine days by using in the evening a quart of an injection, containing from 50 to 60 drops of the oil.

A paper, by M. Mayet, Jr., on the fermentation of currant juice, was read, and selected for publication. M. Martin stated that currants collected before they are entirely ripe, yield a juice which is readily clarified, and keeps well.

M. J. H. Marais presented a specimen of false opoponax, which was entirely composed of myrrh, and read a note, stating that this gum resin is at present in Paris only employed in perfumery. The demand being limited, and the commercial supply exhausted, fraudulent articles were substituted. True opoponax burns with a non-sooty flame, and gives off a strong odor of celery root, while the false article has the odor of the gum resin or resins from which it has been made. Under the influence of nitric acid vapors, myrrh acquires a fine rose color, while the color of opoponax is not altered.

A new acid, dioxymaleic acid, was described by M. Bourgoin, and a new modification of a dropping glass by M. Guichard. The latter member also gave his

researches on ceresin. Paraffin has a crystalline texture, but ceresin and mineral wax are opaque and not crystalline; the former is completely dissolved by ether, the latter incompletely, leaving a residue resembling the original substance in appearance, and fusing between 80° and 90° C., according to the degree of purification. Mineral wax yields 23 per cent. of a carburet, fusing at 85°; the soluble portion is paraffin. The paraffin examined fused at 53°, ceresin at 63° and mineral wax at 68° C. Potassa does not act upon mineral wax or paraffin, and only upon 3 per cent. of ceresin. These products have no advantage over mineral wax; the absorption of water is difficult, if not impossible; but blistering plaster and pomades acquire, by mineral wax, a hardness, which is advantageous in summer time.

M. Guichard stated that dragon's blood in reeds, but not the variety in balls or cakes, produces, on dry distillation, red vapors anologous to those produced by cinchona bark. This is a new character, which may prove to be of some value.

---

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—Mr. T. H. Hills presided at the Pharmaceutical Meeting held December 2d, at which numerous donations were made to the Cabinet. Professor Bentley exhibited specimens of the boldo-plant, *Boldoa fragrans*, *s.*, *Peumus boldus*, ord. Monimiaceæ, which at the Botanic Garden has attained the height of 12 feet. The leaves and young branches are reputed to possess tonic properties, and to form a valuable remedy in liver complaints; in large doses it acts as an emetic. Its merits as a medicine, however, are not yet well established, but deserve to be further investigated. The leaves contain a large quantity of a volatile oil, and their odor, when rubbed, somewhat resembles the sweet gale, *Myrica gale*. Mr. Hills likened it to verbena.

Mr. Greenish stated, in relation to amorphous phosphorus, the uses of which were discussed at the previous meeting (see page 586 of December number), that a physician had discontinued its use, owing to the gritty character of the substance.

A paper, by Prof. Goddefroy, of Vienna, entitled, "An additional method of testing glycerin," was read. Pure glycerin boils in an open crucible at 150° C., and if now ignited, burns with a blue, not very luminous flame, without diffusing the least smell or leaving behind the least residue. If of less specific gravity, it boils below 150° C., but at the moment of boiling it cannot be ignited. Metallic salts, if present, will remain as a residue, and highly organized combinations will leave a black charred or soot-like residue. Glycerin of spec. grav. 1·249 to 1·256 can easily be ignited by means of a wick, and on extinguishing the flame there is no smell.

Prof. Attfield regarded this as a rough-and-ready test for glycerin to be applied by persons who do not know much about chemistry. Glycerin containing 10 per cent. of water, will burn by the aid of a wick.

Mr. Moss had found that pure glycerin spec. grav. 1·26, will give off a few bubbles when heated to 150° C.; but the boiling (if boiling it be) will cease at once, and the temperature rapidly rises to 230° to 240° C., when boiling fairly sets in; the lowest temperature at which the escaping vapor could be ignited, was between 185° and 190° C.

Mr. J. B. Barnes read a paper on the preservative effect of chloroform upon vegetable infusions, &c., in which a number of experiments are detailed, showing that infusions of calumba, chiretta, malt and senna will keep good for a reasonable time

(over six weeks) by adding five minims of chloroform to every 8 fluidounces, while infusion of roses is preserved by three minims. The mucilages of acacia and of tragacanth remain sweet if one minim of chloroform is added to every fluid ounce; the same proportion will prevent for three weeks the alcoholic fermentation of malt infusion containing yeast, and two to three times the quantity added to fresh milk, was found to keep it neutral and sweet for five days.

A paper by Mr. J. Barnes, on the same subject, was read, stating that many infusions have been kept for three weeks at the Wolverhampton and Staffordshire Hospital, by adding to a bottle containing four pints, two drachms of chloroform. Lately, experiments have been made with chloroform and the addition of some glycerin.

An interesting discussion followed, during which it was agreed that infusions thus preserved, should not be dispensed without the knowledge of the prescribing physician. Professor Attfield stated that the antiseptic properties of chloroform* had been noticed in 1850, in a pamphlet by Aujendie, of Constantinople.

Mr. Charles Umney read a paper on Extractum glycyrrhizæ liquidum, showing that 11 per cent. of spirit is insufficient to prevent fermentation; he noticed the occurrence of a yellow deposit, if kept at an ordinary temperature, and Mr. Martindale had observed the same preparation to completely gelatinize, if kept in a cool place.

# EDITORIAL DEPARTMENT.

Our Journal appears, with the present number, in a new dress, the type having been changed and a style selected which, for clearness, leaves nothing to be desired, and we hope will meet with the favorable commendation of our readers. The editor's aim will continue to be directed towards presenting to the readers all that appears to be new and valuable in the pharmaceutical literature of this country and of Europe, either as selections, original translations, abstracts, or under the head of Varieties. On the other hand, however, it should be remembered that the *Journal* aims at stimulating original observations and investigations, and its pages will always be found open for such a purpose, as well as for the discussion of questions which may be of importance to the elevation of pharmacy. In proportion to the number of pharmacists actively engaged in business, either as proprietors or assistants, the number of contributors to the general stock of knowledge is and always has been small, but the practical observations behind the prescription counter and in the laboratory are often of considerable interest and even importance, and worthy to be preserved for the benefit of the entire profession. If our readers would but take the trouble of making notes of such occurrences in manipulations and processes, their publication would doubtless lead to further investigations, and gratifying results of lasting value might be arrived at. The present number contains original contributions from nine different authors, on practical and scientific subjects, as well as on the general conduct of the business and its relations to other pursuits. We appeal to all readers to follow the example of the comparatively few, and repay at least a portion of the benefit derived from perusing the new literature on pharmaceu-

*Chloroform was recommended for preserving syrup of senna in 1858, by Mr. T. B. Groves.

tical matters, by becoming contributors of all such facts or observations that may appear to be possessed of large or even apparently trivial interest.

---

THE PHILADELPHIA PHARMACY LAW, it seems, is destined to be contested, upon what special grounds we are, as yet, unable to determine. On December 8th, the City Solicitor had summoned before Alderman Beitler three apothecaries for a violation of the Pharmacy law of 1872, in carrying on the apothecary business without having obtained the certificate of competency to conduct the business, as the law requires. On the part of two, it may have been mere negligence, while one of the accused had failed to pass the examination as proprietors; but it was shown that they had due and timely warning in the beginning of the year, and the City Solicitor deferred legal proceedings until near the close of the year, to give the tardy ones ample time for complying with the requirements of the law. Besides the cost each was fined $100, this being the penalty for each week; so that, if the entire penalty was to be imposed, it would amount to between $4000 and $5000 in each case. The fines, we understand, will be paid over to the Guardians of the Poor.

Whether these proceedings aroused the sleeping displeasure of others, or whether other causes created the outburst of indignation, we are not able to say. At any rate, on December 17th, a meeting of all physicians and druggists opposed to *certain provisions* (Italics our own) in the Drug law, as it now stands, was called and held at the appointed time. A pharmacist who was called to preside, stated that he was a graduate of the College of Pharmacy, but his sentiments were against the law, which he considered unconstitutional and oppressive. The newspaper account, however, does not explain the unconstitutional and oppressive provisions. Another speaker said that he had served a long apprenticeship, and had been in the drug business for many years, but he was opposed to going before a board of young examiners. The law operated as a tax upon the poor drug clerks. Still another speaker thought physicians were equally interested with apothecaries in opposing the law.

We do not know how large this meeting was, nor are we acquainted with any one of the speakers mentioned in the daily papers, except with the presiding officer; but we have looked in vain for the *certain provisions* in the Drug law being enumerated by any one of the participants; for the law does not require the members of the Examining Board to be of a more mature age than every one of the candidates who may be required to appear before them. What are these *certain provisions* in which physicians are so much interested? Is one, perhaps, that which does not allow a graduate in medicine to practice pharmacy without first showing that he is competent to do so, and can distinguish rhubarb from opium? Alas! on this question we have been left in the dark; but we think the wisest thing the meeting could have done was the appointment of a committee of five to receive subscriptions and draw up a series of resolutions expressive of the sense of the meeting. When the resolutions appear in print, we shall be better able to weigh the justness of the complaints. In the meantime, however, we hope the Mayor will enforce the law, and we think that the courts and the people will sustain its provisions, which merely aim to prove to the community a sufficient qualification for conducting a business in which the health and life of the public are dependent not only on the honesty, but likewise on the knowledge of proprietor and assistant.

AMERICAN PUBLIC HEALTH ASSOCIATION.—The second annual meeting of this Association, which was held in the hall of the College of Physicians, Philadelphia, November 11th to 14th, deserves more than a passing notice in this Journal. Many of the attendants were health officers from different sections of the country, and the Marine Hospital Service and the Army Medical Department of the United States were well represented. Dr. Stephen Smith, of New York, presided.

We have not the space to follow the discussions on many subjects of general importance, but must confine ourselves to enumerate the following papers, besides several treating of hospitals, drainage and sewerage, epidemics and contagious diseases, which were read at the several sittings: On excessive infant mortality of cities, and the means of its prevention, by Prof. Henry Hartshorne, of Philadelphia; On the influence of hereditary defects upon the health of the people, with suggestions in regard to prevention and eradication, by Dr. J. R. Black, of Ohio; On the health of the tenement populations, and the sanitary requirements of their dwellings, by Dr. E. H. Janes, of New York; On the relations of health and higher culture, by Rev. Sam. Osgood; On building ground in its relation to health and disease, by Dr. Ezra M. Hunt, of New Jersey; On the gathering, packing and transportation of fresh vegetables and fruits, competent inspections and free markets for producers, by Dr. S. C. Busey, of Washington, D. C.; On the methods of treatment of gases from rendering tanks, and the disposal of tank offal, by Dr. B. C. Miller, of Chicago; On certain perils of the school-room which demand the attention of educational and sanitary authorities, by Dr. A. N. Bell, of Brooklyn; On health laws and the interests and obligations of the State and National Governments pertaining to them, by Hon. D. B. Eaton, of Washington; On health a prerequisite in peace and in war, by Dr. L. H. Steiner, of Maryland; On American pharmacy and its relations to public health, by John M. Maisch, Secretary of the American Pharmaceutical Association. The last paper referred to the importance of pharmacy to the general welfare; to the large amount of spurious, inferior and adulterated drugs formerly imported into this country; to the salutary effects of the drug examining law of 1848; to home adulterations, its causes, and the channels through which they are disposed; to the so-called specialties, and the manner of their introduction; to patent medicines, and the best modes of decreasing their sales; to the pharmacy laws, the benefit derived from their enforcement; to the laws for preventing the sale of abortifacient drugs, and concluded by stating "that the most effectual method of securing all the advantages of American pharmacy to public health would be to insure the proper qualification of the pharmacists. This is one of the main purposes of the local pharmaceutical associations, and of the National representative body of pharmacists. To accomplish this among kindred objects, these societies have earnestly labored for years, and in their efforts deserve the support of all having the welfare and safety of the public at heart."

Prof. Gross, of Philadelphia, introduced a series of resolutions, urging the establishment of a National Bureau of Health. Similar resolutions offered by Dr. Goodwin, urged the importance of enacting laws creating a State Board of Health, providing adequate measures for sanitary administration throughout each State.

The officers elected for the ensuing year are: Dr. J. M. Toner, Washington, D. C., President; Dr. E. M. Snow, of Rhode Island, and Dr. Henry Hartshorne, of Philadelphia, Vice-Presidents; Dr. Elisha Harris, of New York, Secretary; Dr. J.

R. Rauch, of Illinois, Treasurer; and an Executive Committee, of which Dr. J. S. Billings, U. S. A., is the Chairman.

The next meeting of this association will be held in Baltimore, on the second Tuesday of November, 1875.

# REVIEWS AND BIBLIOGRAPHICAL NOTICES.

*Jahresbericht über die Fortschritte der Pharmacognosie, Pharmacie und Toxicologie*, von Dr. Wiggers, Prof. in Göttingen, und Dr. A Husemann, Prof. in Chur. Neue Folge, 8 Jahrgang. 1873. Göttingen: Vandenhoeck & Ruprecht's Verlag, 1874. 8vo, pp. 618.

Annual Report on the Progress of Pharmacognosy, Pharmacy and Toxicology, for 1873.

This excellent annual, the thirty-third volume of which is before us, is so well known to all those of our readers who are acquainted with the German pharmaceutical literature, that we need but mention the appearance of this volume, in which the authors have, with their accustomed care and completeness, extracted and reviewed the pharmaceutical literature of all civilized countries. The arrangement remains the same as heretofore, and the frequent references to former volumes facilitate the study of any particular subject.

Those of our readers who desire to procure this work, will be interested to learn that subscribers to this may procure the first seven volumes of the new series (1866 to 1872) at 10 thalers, which is one-half the publication price.

*The Chemists' and Druggists' Diary.* 1875. London. 4to.

The convenient arrangement of this annual publication adapts it to the use in the store and for memoranda in the laboratory. Besides other useful information, it contains a number of formulas, copied from Mr. C. L. Lochman's translation of the German Pharmacopœia.

*Deutsch-Amerikanische Pharmaceutische Zeitung, Central Organ für die deutschen Apotheker, Aerzte und Drogisten in den Ver. Staaten.* Herausgeber: A. G. F. Streit, Ph. D., and Otto M. Huncke, L. Ch. Belleville, Ill. 4o.

German-American Pharmaceutical Gazette, Central Organ for the German Apothecaries, Physicians and Druggists in the United States. Editor: A. G. F. Streit, M. D.

We have been favored with a proof-sheet of this new pharmaceutical preparation which is published in the German language. Its objects, as stated in the prospectus, are; 1, discussion of all questions of pharmaceutical interest; 2, combatting of the patent medicine evil; 3, furtherance of pharmaceutical science, art, and knowledge; 4, elevation of pharmacy in the estimation of the public.

We wish this new enterprise good success, and feel convinced that both editor and publishers will leave nothing undone to deserve it.

*Bericht über den vierten internationalen Congress pharmaceutischer Vereine und Gesellschaften vom 1–13 (6–18), August, 1874, zu St. Petersburg.*

Report on the Fourth International Congress of Pharmaceutical Societies and Associations, held at St. Petersburg, August 1 to 13 (6 to 18), 1874.

We have already given a synopsis of the transactions of this body, but hope to present to our readers more fully some of the more important proceedings.

*The Yellow Fever Epidemic of* 1873. *The White Blood Corpuscle.* By Jerome Cochrane, M. D., Professor, etc. Montgomery, Ala.: 1874. 8vo, pp. 115.

*Annual Report of the Treasurer of the United States to the Secretary of the Treasury for the fiscal year ending June* 30, 1873. Washington.
The same for the year ending June 30, 1874. Washington.

*Ecole de Pharmacie de Montpellier. Cours de Pharmacie.* Par J. Léon Soubeiran.

The reception of the above pamphlets, together with several addresses and essays, reprints from various American and European medical journals, is hereby acknowledged.

## OBITUARY.

PROFESSOR DR. FREDERICK ROCHLEDER died November 5th, in the 56th year of his age. He was born in Vienna in 1819, graduated in medicine in 1843, and in 1845 accepted a call as Professor of Chemistry in the Polytechnic Academy at Lemberg. In 1849 he followed Redtenbacher at the University of Prague; and after his decease in 1870, he was called to fill the vacancy thus occasioned in the chair of General and Pharmaceutical Chemistry at the University of Vienna. The former volumes of this Journal contain a number of his researches, and in the years 1861, and 1862 a translation of his Proximate Analysis of Plants was published.

## CATALOGUE

OF THE

# Class of the Philadelphia College of Pharmacy,

FOR THE FIFTY-FOURTH SESSION, 1874–75.

*With a List of their Preceptors and Localities.*

| MATRICULANTS. | TOWN OR COUNTY. | STATE. | PRECEPTOR. |
|---|---|---|---|
| Anderson, Clarence B. | Philadelphia, | Pennsylvania. | E. D. Chipman. |
| Angney, William M. | " | " | J. R. Angney, M. D. |
| Anstet, Z. S. | Cooperstown, | " | W. S. Radcliffe. |
| Appenzeller, Gustav. | Carlsruhe, | Germany. | John C. Hirst. |
| Armstrong, Thos. S. | Phillipsburg, | New Jersey. | James T. Shinn. |
| Ashcom, J. W. | Renovo, | Pennsylvania. | W. E. Hall. |
| Baker, W. T. | Philadelphia. | Pennsylvania. | James Jones, M. D. |
| Barr, J. Rufus, | Chester, | " | John H. Kerlin. |
| Barrere, G. W. | Hillsboro, | Ohio. | Charles Shivers. |
| Baur, Hugo F. | Milwaukee, | Wisconsin. | C. C. Spannagel. |
| Behlar, John, | Washington, | District of Col. | G. A. Backman, M. D. |
| Beidler, Samuel M. | Juniata County, | Pennsylvania. | P. H. Horn. |
| Bibby, Walter E. | Ripley, | Ohio. | Thomas H. Smart. |
| Bicker, William B. | Philadelphia, | Pennsylvania. | J. W. Parrish. |
| Bickley, Wm. M. | Danville, | " | W. M. Bickley, M. D. |
| Blake, John H. | Philadelphia, | " | A. L. Helmbold. |
| Bodenhorn, A. | Annville, | " | D. H. Leslie, M. D. |
| Boerner, Emil L. | Iowa City, | Iowa. | W. C. Bakes. |
| Boericke, Frank L. | Philadelphia, | Pennsylvania. | Boericke & Tafel. |
| Boileau, Wm. N. K. | " | " | Clarence S. Smith. |
| Boisnot, F. S. | Franklin Park, | New Jersey. | William M. Rice. |
| Boisnot, H. S. | " | " | W. Weber. |
| Botsford, Chipman, | St. Johns, | New Brunswirk. | |
| Bowen, Daniel A. | West Bridgeton, | New Jersey. | George W. Whipple. |
| Braddock, W. H. | Camden, | " | C. S. Braddock. |
| Brennan, Henry M. | Philadelphia, | Pennsylvania. | W. D. Harrison, M. D. |
| Brenton, Willis, | Pittstown, | " | Powers & Weightman. |
| Brotherline, Charles A. | Lebanon, | " | Thomas R. Coombs. |
| Brown, Frank P. | Philadelphia, | " | A. Shryock. |

| MATRICULANTS. | TOWN OR COUNTY. | STATE. | PRECEPTOR. |
|---|---|---|---|
| Browne, J. J. | Greenville, | Ohio. | D. L. Emerick. |
| Bullock, Lawrence M. | Jacobstown, | New Jersey. | W. Procter, Jr. & Co. |
| Burdick, E. R. | Milford, | Delaware. | E. E. Harlett. |
| Burge. James O. | Bowling Green, | Kentucky. | John H. Smith. |
| Burke, William E. | Princeton. | New Jersey. | J. S. Erben. |
| Butcher, Benjamin F. | Philadelphia, | Pennsylvania. | S. Stones, M. D. |
| Carbonell, Louis P. | | Cuba. | Joseph P. Remington. |
| Carey, Ashbel, | Salem, | Ohio. | S. Campbell. |
| Case. Flavius I. | Logan, | " | F. Harrington. |
| Cheatham, Thomas A. | Dawson, | Georgia. | C. A. Cheatham. |
| Christman, Harry W. | Norristown, | Pennsylvania. | William Stahler. |
| Clarke, L. G. | Zanesville, | Ohio. | Joseph Shaw. |
| Clayton, F. E. | Lima, | " | J. Y. Marmon. |
| Clayton, R. P. | Dover, | Delaware. | A. R. Hortter. |
| Cline, Samuel P. | Mount Holly, | New Jersey. | A. S. White. |
| Cloud, Harlan, | Chester, | Pennsylvania. | Wm. B. Ulrich. |
| Cotzhausen, L. von, | Milwaukee, | Wisconsin. | Henry Biroth. |
| Conner, William, | Philadelphia, | Pennsylvania. | D. J. Bossler. |
| Conrath, F. | Milwaukee, | Wisconsin. | O. A. Thiell. |
| Cook, Thomas P. | Philadelphia, | Pennsylvania. | Powers & Weightman. |
| Corbyn, Theophilus N. | " | " | Aschenbach & Miller. |
| Cox, John C. | Columbus, | New Jersey. | G. W. Ouram. |
| Crawford, W. F. | Williamsport, | Pennsylvania. | W. F. Logan. |
| Craighead, Thomas, | Philadelphia, | " | Geo. S. Craighead. |
| Creen. Judge J. | Conshohocken, | " | James W. Harry. |
| Creighton, B. T. | Mansfield, | Ohio. | J. B. Moore. |
| Daniel, Charles A. | Germantown, | Pennsylvania. | D. A. Jones. |
| Darrach, Francis L. | Philadelphia, | " | R. F. Fairthorne. |
| Davidson, Edward J. | " | " | S. C. Campbell. |
| Davis, Isaac, | " | " | G. H. Davis. |
| Davis, Samuel B. | " | " | W. J. Jenks. |
| Davison James, | " | " | W. E. Knight. |
| Davy, George W. | " | " | Bullock & Crenshaw. |
| Dilg, P. H. | Milwaukee, | Wisconsin. | Hirst & Gerhardy. |
| Drueding, Charles C. | Philadelphia, | Pennsylvania. | Charles Bauer. |
| Durborow, C. M. C. | Altoona, | " | B. F. Johnson. |
| Eisenbrey, Frank L. | Philadelphia, | " | Bullock & Crenshaw. |
| Eisner. Moritz. | " | " | Cramer & Small. |
| Elfreth, Jacob R. | " | " | W. H. Pile & Sons. |
| Emanuel, Louis, | Allegheny City, | " | P. Walter, Jr. |
| Endicott. John F. | Philadelphia, | " | D. L. Stackhouse. |
| Evans, Joseph C. | " | " | Frederick Brown. |
| Evans, J. H. | " | " | Robert Simpson. |
| Everhart, T. | York, | " | J. Kemble. |
| Ewing, George W. | Philadelphia, | " | James L. Bispham. |
| Fiedler, A. | " | " | J. W. Ranck. |
| Fielding, John, | Chester, | " | M. H Bickley. |
| Fisher, Henry, | Philadelphia, | " | Wm. H. Walling. |
| Fleming, William F. | Ottawa. | Canada, | J. A. Cantrell. |
| Flinn, Henry, | Philadelphia, | Pennsylvania. | W. W. Glentworth, M. D. |
| Frew, George B. | Lancaster, | " | Geo. J. Hoover. |
| Frueh, Ernst, | Philadelphia, | " | Carl D. S. Frueh. |
| Fry, Wilburn W. | Wilkesbarre, | " | Jno. Wyeth & Bro |
| Fuller, S., Jr. | Uniontown, | " | Fuller & Co. |
| Gatchel, Edmund R. | Philadelphia, | " | Wm. B. Webb. |
| Geibel, John W. | Henderson, | Kentucky. | W. S. Johnson & Bro. |
| Geissenhainer, C. B. | Philadelphia. | Pennsylvania. | |
| Gentsch, D. C. | New Philadelphia, | Ohio. | G. T. Gentsch. |
| Gingrich, E. H. | Annville, | Pennsylvania. | John Bley. |
| Gleim, Perry M. | Lebanon, | " | J. L. Lemberger. |
| Goess, George C. | Philadelphia, | " | Valentine H. Smith & Co. |
| Graber, Leon J. | Bethlehem, | " | Alexander Brown, M. D. |
| Graham, Willis H. | Zanesville, | Ohio. | W. A. Graham & Co. |
| Gray, George W. | Philadelphia, | Pennsylvania. | Isaac Tull. |
| Griffith, Charles, | Johnstown, | " | Peter P. Fox. |
| Groves, John D. | Philadelphia, | " | M. F. Groves, M. D. |
| Gruhs, William, | " | " | Aschenbach & Miller. |
| Hallberg, C. S. N. | Altoona, | " | S. M. Sellers, M. D. |
| Hano, Simon L. | Philadelphia, | " | Charles R. Haig. |
| Harris, Park. | West Chester, | " | Jos. S. Evans. |
| Hart, G. H. J. | New Orleans, | Louisiania. | Bullock & Crenshaw. |
| Hartwig, C. F. | Oconomowoc, | Wisconsin. | O. Penser. |
| Hayes, J Frank, | Oxford, | Pennsylvania. | Madison Lovett. |
| Hayhurst, H. T. | Burlington, | Iowa. | D. B. Colby. |
| Heidt, T. Purse, | Savannah. | Georgia. | G. M. Heidt & Co. |
| Herrman. Ernst. | Philadelphia, | Pennsylvania. | Herman Frasch. |
| Holden, George B. | Haverhill, | Massachusetts. | Emerson & Howe. |
| Holden, George C. | Corry, | Pennsylvania. | Jas. T. Shinn. |
| Hooper. Oliver P. | East New Market, | Maryland. | E. B. Snider. |
| Hopp, L. C. | Cleveland, | Ohio. | A. Mayell. |
| Hoquet, Wm. | Bristol, | Pennsylvania. | Lewis A. Hoquet. |

| MATRICOLANTS. | TOWN OR COUNTY. | STATE. | PRECEPTOR. |
|---|---|---|---|
| Homberger, Chas E. | Speyer, | Germany. | C. E. Haenchen. |
| Hummel, C. Carroll, | Hummelstown, | Pennsylvania. | S. Campbell. |
| Hunter, W. Birt, | Philadelphia, | " | L. M. Pratt, M. D. |
| Hurst, Samuel B. | " | " | Jno. C. Hurst. |
| Huston, Thomas A. | Mount Vernon, | Ohio. | C. R. Keeney. |
| Ireland, R. F. | Camden, | New Jersey. | J. C. De La Cour. |
| Janvier, C. Pierre, | Philadelphia, | Pennsylvania. | E. Janvier, M. D. |
| Jenkins, F. C. | Wilmington, | Delaware. | Smith & Painter. |
| Jacoby, Reuben Z. | Quakertown, | Pennsylvania. | W. A. McLean, M. D. |
| Johnson, S. W. | Philadelphia, | " | C. W. Karsner. |
| Jones, Howard Grant, | " | " | Daniel S. Jones. |
| Justice, Richard S. | Camden, | New Jersey. | W. R. Warner & Co. |
| Keller, A. H. | Romersburg, | Pennsylvania. | C. H. Needles. |
| Keller, Albert P. | Philadelphia, | " | G. W. Kennedy. |
| Kilbride, John J. | White Deer Mills, | " | W. C. Ebaugh, M. D. |
| Kimbrough, James M. | Stanton, | Tennessee. | W. H. Bennett. |
| Kindig, I. H. S. | Harleysville, | Pennsylvania. | D. S. Wiltberger. |
| King, Edward R. | Bordentowm, | New Jersey. | James Stratton. |
| King, J. Blair S. | Philadelphia, | Pennsylvania. | J. L. Bispham. |
| Kinney, M G., Jr. | Bloomsburg. | " | F. Jacoby, Jr. |
| Kinports, John H. | Annville, | " | H. B. Lippincott. |
| Klopp, Eli L. | Stouchburg, | " | I. Rosenberger. |
| Knox, R. C. | Chicago, | Illinois. | |
| Kochler, Otto, | Greiz, | Germany. | F. Romberg. |
| Kolp, J. L. | Philadelphia, | Pennsylvania. | C. H. Kolp. |
| Kramer, I. D. W. | Minersville, | " | Herman Gerhard. |
| Kratz, M. | Perkasie, | " | James Milton. |
| Kraus, Otto, | Philadelphia, | " | S. Gerhard. |
| Krogman, Jos. J. | " | " | B. Falkenberg. |
| Kutz, Wilson L. | Lyons, | " | Jno. G. Baker. |
| Laschell, Charles L. | Catawissa, | " | S. T. Ringell. |
| Laver, P. J. | Mansfield, | Ohio. | C. Cady, M. D. |
| Lechler, Harry P. | Richmond, | Virginia. | Wm. L. Turner. |
| Levy, David W. | Ashland, | Pennsylvania. | C. W. Seary, M. D. |
| Lewis, Wm. S. | West Bridgeton, | New Jersey. | J. P. Bolton. |
| Lins, Frank P. | Allentown, | Pennsylvania. | J. M. Thomas. |
| Lippincott, Chas. D. | Williamsport, | " | Huber & Vanderslice. |
| Logan, H. W. | " | " | C. Ellis Sons & Co. |
| Louderbough, Frank P. | Dover, | Delaware. | James T. Shinn. |
| Lyne, J. Henry, | Henderson, | Kentucky. | George Lyne. |
| McMullin, Andrew, | Philadelphia, | Pennsylvania. | W. Trinder. |
| McMullin, A | " | " | A. M. Wilson. |
| McRoberts, W. B. | Stanford, | Kentucky. | |
| Manlove, H. C. | Dover, | Delaware. | |
| Maguet, Louis F. | Gallipolis, | Ohio. | L. P. Máguet. |
| Marquardt, Charles, | La Crosse, | Wisconsin. | A. W. Test. |
| Marshall, H. J. | Ghent, | Kentucky. | A. P. Marshall. |
| Martin, G., Jr. | Philadelphia, | Pennsylvania. | A. H. Yarnall. |
| Martin, Jno. A. | " | " | C. H. Dwyer. |
| Martin, Jno. C. | Allegheny City, | " | R. M. Snodgrass. |
| Maston, James A. | Alexandria, | Virginia. | P. J. L. Carberry, M. D. |
| Mateer, John D. | Mechanicsburg, | Pennsylvania. | A. P. Blomer. |
| Maulick, W. Frederick, | Marietta, | " | Daniel S. Jones. |
| Means, William B. | Lewistown, | " | Wirgman & Bro. |
| Merritt, J. Wayne, | Woodbury, | New Jersey. | Bullock & Crenshaw. |
| Messing, Jacob, Jr. | Elizabeth, | " | Jas. B. McElroy. |
| Metz, Samuel A. | Phillipsburg, | Pennsylvania. | E. L. Stowell. |
| Meyer, William, | Milwaukee, | Wisconsin. | Baumbach & Gerhardy. |
| Miller, C. M. | Mansfield, | Ohio. | S. E. R. Hassinger. |
| Mitchell, Wm. S. | McVeytown, | Pennsylvania. | J. E. Grove. |
| Moenkenweller, Ch. | Wheeling, | West Va. | George R. Vernon. |
| Montgomery, E B. | Quincy, | Illinois. | Rogers & Montgomery. |
| Moore, Frank, | North East, | Indiana. | August Hohl. |
| Moore, Wm. I. | Indiana, | Pennsylvania. | E. S. Beary. |
| Mulford, A. L. | Camden, | New Jersey. | Sylvester Birdsall, M. D. |
| Murray, F. M. | Bluffton, | Ohio. | Yoder & Hauenstein. |
| Myers, Edwin, | Philadelphia. | Pennsylvania. | A. W. Wright & Co. |
| O'Neil, George, | " | " | Powers & Weightman. |
| Osborne, Melmoth M. | Wilmington, | Delaware. | |
| Patterson, J. L. | Millerstown, | Pennsylvania. | S. M. Baldwin. |
| Plummer, Edward, | Brooklyn, | New York. | H. C. Eddy. |
| Poley, Warren H. | Norristown, | Pennsylvania. | F. B. Poley, M. D. |
| Poole, Wm. | Wilmington, | Delaware. | E. Bringhurst & Co. |
| Porter, A. R. | Vevay, | Indiana. | J. L. Thiebaud & Son. |
| Powell, Wm. R. | Seaforth, | Canada. | Etorman Lehman. |
| Quinn, J. W. | Hillsboro, | Ohio. | Charles Shivers. |
| Railey, Irvin, | Versailes, | Kentucky. | S. B. Smith & Co. |
| Ramsey, Wm. H. | Reedsburg, | Wisconsin. | Samuel Ramsey. |
| Reed, Eugene L. | Atlantic City, | New Jersey. | E. S. Reed. |
| Reifsnider, H. D. | Springfield, | Ohio. | H. C. Blair's Sons. |

| MATRICULANTS. | TOWN OR COUNTY. | STATE. | PRECEPTOR. |
|---|---|---|---|
| Reimann, L. P. | Buffalo, | New York. | J. A. Heintzelman. |
| Richardson, David D., M. D. | Philadelphia, | Pennsylvania. | |
| Richardson, O. B. | Brattleboro, | Vermont. | Wm. McIntyre. |
| Righter, Wm. H. | Wilmington, | Delaware. | H. R. Bringhurst. |
| Ritter, John, | Milwaukee, | Wisconsin. | Thomas Brown. |
| Robbins, Wm. H. | Philadelphia, | Pennsylvania. | Alonzo Robbins. |
| Robinson, S. E. | Chambersburg, | " | C. H. Cressler. |
| Robinson, Wm. D. | " | " | C. H. Cressler. |
| Rogers, Joseph C. | Frenchtown, | New Jersey. | C. J. Nice. |
| Rosenberger, Edmund S. | Philadelphia, | Pennsylvania. | S. Rosenberger. |
| Rosenthal, D. A. | " | " | W. R. Warner & Co. |
| Ross, David W. | " | " | J. F. Ross. |
| Rudolph, John M. | " | " | J. S. Ward. |
| Rush, George D. | " | " | Bean & Stevenson. |
| Sandt, George L. | Easton, | " | R. W. Ritchie, M. D. |
| Schimminger, G. W. | Philadelphia, | " | J. W. Dallam & Co. |
| Schirmer, W. G. | Pittsburg, | " | M. C. Kreitzer, M. D. |
| Schools, George W. | Lebanon, | " | J. A. Armstrong, M. D. |
| Schreiber, Edmund, | Allentown, | " | W. E. Barnes, M. D. |
| Schroeder, Henry C. | Chicago, | Illinois. | Gale & Blocki. |
| Seeger, Joseph W. | Philadelphia, | Pennsylvania. | Roger Keys, M. D. |
| Shamalia, George M. | Lambertville, | New Jersey. | C. F. Moore. |
| Shaw, C. E. | Paris, | Illinois. | J. W. Binford. |
| Sher, Frank P. | Philadelphia, | Pennsylvaaia. | J. W. Dallam & Co. |
| Sheridan, James H., | South Bethlehem, | " | E. Parrish & Son. |
| Sherman, Charles R. | Des Moines, | Iowa. | W. A. Colton. |
| Shinn, Howard G. | Philadelphia, | Pennsylvania. | W. C. Bakes. |
| Sides, Howard B. | " | " | Samuel Gerhard. |
| Smith, Joseph S. | Warren, | " | J. R. Stevenson. |
| Snyder, Charles, | Philadelphia, | " | Wirgman & Bro. |
| Sommers, Richard M. | Camden, | New Jersey. | Thomas G. Rowand, M. D. |
| Sonnick, John W. | Buffalo, | New York. | E. B. Garrigues & Co. |
| Spengler, Allen. | Easton, | Pennsylvania. | R. W. Morgan, M. D. |
| Stansbury, Wilson V. | Harrisburg, | " | Thomas H. Franklin. |
| Steele, Frank P. | New London, | " | W. H. Rinker. |
| Steuben, M. R. | Bethlehem, | " | Henry A. Bower. |
| Stewart, F. E. | Homer, | New Jersey. | H. C. Blair's Sons. |
| Stirling, S. R. | Philadelphia, | Pennsylvania. | J. R. Angney, M. D. |
| Stock, J. F. | Woodbury, | " | A. P. Blomer. |
| Stockton, Wm. W. | Mount Holly, | New Jersey. | Isaac W. Smith. |
| Stoner, E. Frank, | Lancaster, | Pennsylvania. | Bullock & Crenshaw. |
| Stoner, Wm. J | Harrisburg, | " | J. A. Braddock. |
| Street, Leonidas H. | Camden, | New Jersey. | Edwin Tomlinson, M. D. |
| Strobel, John, | Philadelphia, | Pennsylvania. | M. K. Knorr, M. D. |
| Stuart, Manilus H. | " | " | D. Milligan. |
| Sussdorff, Frank L. | Salem, | North Carolina. | E. T. Meyers. |
| Tatem, Charles H. | Philadelphia, | Pennsylvania. | Alfred Tatem. |
| Taylor, Joseph Y. | " | " | A. B. Taylor. |
| Taylor, Walter A. | Atlanta, | Georgia. | J. A. Taylor. |
| Taylor, Winfield Scott, | Camden, | New Jersey. | Bullock & Crenshaw. |
| Thayer, Edward M. | " | " | T. G. Thomas. |
| Thorn, Henry P. | Medford, | " | Isaac W. Stokes. |
| Tiarks, Hermann, | Monticello, | Iowa. | L. Manz. |
| Tobey, Charles W. | Troy | Ohio. | E. F. Rinehart. |
| Tomlinson, T. C. | Kent Co., | Delaware. | S. Cradick, M. D. |
| Toulson, M. A. | Chestertown, | Maryland. | Marshall, Edwards & Co. |
| Trout, W. W. | Carlisle, | Pennsylvania. | H. C. Blair's Sons & Co. |
| Van Gorder, A. H. | Warren, | Ohio. | William Hapgood. |
| Van Gunten, Alex. T. | Philadelphia, | Pennsylvania. | Aquila Nebeker. |
| Voelcker, Rudolph F. G. | New Braunfels, | Texas. | G. V. Eddy. |
| Walch, Robert H. | Philadelphia, | Pennsylvania. | Jno. Wyeth & Bro. |
| Waldman, John, | " | " | Valentine H. Smith & Co. |
| Walker, John W. | Martinsburg, | West Va. | J. L. W. Baker. |
| Wall, W. H. | Englewood, | New Jersey. | Isaac Tull. |
| Ward, Walter, | Philadelphia, | Pennsylvania. | G. Krause. |
| Watson, Herbert K. | Wilmington, | Delaware. | B. & C. Shoemaker. |
| Watt, Harry C. | Indiana, | Pennsylvania. | W. C. Bakes. |
| Webb, Morrison W. | Salem, | Ohio. | C. L. Cumming. |
| Weiser, Wm. P. | York, | Pennsylvania. | A. P. Brown. |
| White, Hugh, | Philadelphia, | " | Bullock & Crenshaw. |
| Whittlesey, H. H. | Berlin, | Wisconsin. | O. Fowler. |
| Wilgus, J. F. | Bordentown, | New Jersey. | G. D. Blomer. |
| Wilson, Lewis H. | Camden, | " | D. S. Wiltberger. |
| Wittkamp, H. L., Jr. | Hannover, | Germany. | D. Wittkamp. |
| Witmer, John A. | Lancaster, | Pennsylvania. | S. S. Bunting. |
| Worriloy, B. Franklin, | Chadsford, | " | H. Wampole & Co. |
| Wright, George S. R. | Philadelphia, | " | R. Walmsley. |
| Wright, J. L. | Warrenton, | Georgia. | |
| Zacharias, Isidore, | Savannah, | " | J. Lippman & Bro. |